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MULTNOMAH
GW SAMPLING

GROUNDWATER SAMPLING REPORT

Port of Portland
Marine Terminal 1 South
2100 NW Front Avenue
Portland, Oregon

February 25, 2002

USEPA SF



1286557

HAHN AND ASSOCIATES, INC.
Environmental Management

434 NW 6th Avenue, Suite 203
Portland, Oregon 97209-3600
503/796-0717 • 503/227-2209 FAX

GROUNDWATER SAMPLING REPORT

Port of Portland
Marine Terminal 1 South
2100 NW Front Avenue
Portland, Oregon

February 25, 2002

REC'D BY DEQ
FEB 28 2002
DEPT OF ENVIRONMENTAL QUALITY
MANUFACTURED WASTE SECTION

Prepared for:

The Port of Portland
Portland, Oregon

Prepared by:

Hahn and Associates, Inc.
Portland, Oregon

HAI Project No. 5106
DEQ ECSI File No. 2642

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HAHN AND ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS

February 25, 2002

Mr. Joe Mollusky
The Port of Portland
P.O. Box 3529
Portland, Oregon 97208

HAI Project No. 5106
DEQ ECSI File No. 2642

Subject: Groundwater Sampling Report; Port of Portland Marine Terminal 1 South, 2100
NW Front Avenue, Portland, Oregon

Dear Mr. Mollusky:

1. Introduction

The Port of Portland (the Port) retained Hahn and Associates, Inc. (HAI) to conduct groundwater sampling activities at Marine Terminal 1 South located at 2100 NW Front Avenue, Portland, Oregon (Figure 1). The work activities, conducted in January 2002, consisted of sampling seven groundwater monitoring wells at the site. The work activities were conducted in response to a July 26, 2001, Oregon Department of Environmental Quality (DEQ) letter¹ requesting further characterization of site groundwater via monitoring well installation and sampling to supplement remedial investigation (RI) activities at the site.

All work unless otherwise noted, was conducted according to the Site Characterization Work Plan², Work Plan Addendum³, an August 7, 2001, DEQ Work Plan Addendum response letter⁴, and a January 14, 2002, electronic mail (Appendix A) to the Port. The report herein summarizes the results of the second groundwater sampling event conducted at the site in January 2002.

¹ Oregon Department of Environmental Quality (2001a). *Comments on Remedial Investigation Report, Marine Terminal 1 South, Portland, Oregon, ECSI No. 2642*. July 26, 2001.

² Hahn and Associates, Inc. (2000). *Work Plan for Supplemental Site Characterization, Marine Terminal 1 South Redevelopment, 2100 NW Front Avenue, Portland, Oregon*. August 31, 2000.

³ Hahn and Associates, Inc. (2001). *Work Plan (Addendum No. 2) for Groundwater Monitoring, 2100 NW Front Avenue, Portland, Oregon*. August 1, 2001.

⁴ Oregon Department of Environmental Quality (2001b). *Comments, Work Plan (Addendum No. 2), Marine Terminal 1 South, Portland, Oregon, ECSI No. 2642*. August 7, 2001.

2. Field Activities

2.1 Monitoring Well Sampling Activities

On January 17 and 18, 2002, the groundwater from seven existing monitoring wells at the Site was sampled. Prior to sampling, at least 3 well volumes of water were purged from each well using a submersible pump and disposable polyethylene tubing. The pH, temperature, conductivity, redox potential, dissolved oxygen, and turbidity of the water were measured with field instruments during the purging process to monitor for stabilization of these parameters. Monitoring well purge records are in Appendix B.

Following completion of purging the well, a representative sample of the groundwater was obtained using either the submersible pump [TPH, PAHs, metals, and total suspended solids (TSS)] or a new disposable bailer (VOCs). The water was carefully transferred to the appropriate sampling containers that were completely filled such that no headspace was present that would allow the loss of volatiles. The sample bottles were then transferred to a chilled container for shipment to the analytical laboratory.

The static water levels in all the monitoring wells were measured on January 17, 2002, prior to the sampling event, using a Solinst water level indicator (conductive probe). The water levels were measured from the north side of the top of the casing. An additional water level monitoring event was conducted on November 28, 2001. Static water level measurements are summarized on Table 2; field logs are in Appendix B.

2.2 Decontamination Procedures

New, disposable tubing and bailers were used between each well location for the groundwater sampling activities. The submersible pump was cleaned between each sample using a detergent wash and two tap water rinses.

2.3 Investigative-Derived Waste

Purge water and decontamination water generated during the sampling activities was containerized in two 55-gallon drums and left on site for future disposal.

All investigative-derived waste generated during the RI activities is stored at a secure location between House No. 104 and Warehouse No. 2.

3. Analytical Tests

The groundwater samples were shipped with chain-of-custody documentation in sealed and chilled containers to North Creek Analytical in Beaverton, Oregon, for analysis.

Groundwater samples collected during the groundwater monitoring activities were analyzed according to the Revised Groundwater Monitoring Plan (Table 1) updated as per Oregon DEQ's January 14, 2002, electronic mail (Appendix A), for the following parameters:

<u>Parameter</u>	<u>Analytical Method</u>
Diesel-Range Petroleum Hydrocarbons NW TPH-Dx	
VOCs	EPA 8260B
PAHs	EPA 8270 SIM
Total Suspended Solids	EPA 160.1
Total and Dissolved Metals ¹ :	
unfiltered and filtered	EPA 6010/7470A

1 = arsenic, chromium, copper, and lead

The results of the analytical testing for monitoring well groundwater samples collected during both the October/September 2001 and January 2002 groundwater sampling events are summarized in Tables 3 and 4. The laboratory reports and chain-of-custody documentation for January 2002 groundwater sampling event are included in Appendix C.

4. Results and Discussion

4.1 Site Hydrogeology

On November 28, 2001, and January 17, 2002, groundwater was encountered in the monitoring wells at depths ranging from 17.6 feet (MW-1) to 25.7 (MW-7) feet below top of casing, or elevations of 12.79 to 7.8 feet above mean sea level (Table 2; Figure 3).

Groundwater elevations on November 28, 2001, and January 17, 2002, indicate a general flow to the northeast towards the Willamette River with a decline, or even reversal, of the gradient near the river (Figure 4). Groundwater elevations at MW-5 appear to be anomalously high, possibly due to river wall construction in this area.

4.2 Screening Levels

The risk assessment⁵ prepared for the Site did not identify human health risks relating to groundwater. However, potential ecological risks were identified relating to the "groundwater to surface water pathway". Accordingly, DEQ Ecological Benchmark Screening Levels (EBSLs) for a freshwater aquatic receptor were utilized to screen groundwater results for a preliminary risk evaluation of the "groundwater to surface water pathway".

4.3 Groundwater Sampling Results

The groundwater results are summarized below and on Tables 3 and 4.

- Diesel-range or oil-range petroleum hydrocarbons were not detected above laboratory reporting limits in groundwater at MW-5 (B-37 Area) or MW-7.
- Benzene, toluene, ethylbenzene, and xylene (BTEX) compounds were not detected at any wells where analyzed (MW-1, MW-2, MW-3, MW-5, or MW-7).
- One halogenated VOC, tetrachloroethene (PCE), was detected in MW-1 at a concentration of 3.06 ppb. The concentration of PCE detected at MW-1 is similar to the concentration detected during the previous sampling event (3.29 ppb) in October 2001. The source of the detected PCE is likely from an up-gradient off-site source.
- PAHs were present at low concentrations (less than 1.1 ppb total PAHs) in five of seven monitoring wells (MW-2, MW-3, MW-4, MW-5, and MW-7) (Table 4). The detected PAHs, all non-carcinogenic, were present at concentrations below EBSLs. PAHs were not detected above laboratory reporting limits at MW-1 (B-38 Area) or MW-6, consistent with the previous event at generally lower levels.
- Total (unfiltered) arsenic, chromium, and copper were detected in groundwater, but at concentrations below EBSLs at all well locations. Only lead at MW-7 was detected at a concentration (3.94 ppb) above its respective EBSL of 2.5 ppb.
- Analysis of dissolved (filtered) arsenic, copper, chromium and lead was conducted at all well locations. The filtered concentrations of arsenic remained largely unchanged from unfiltered concentrations at all wells. A reduction of arsenic to non-detect levels was observed in the filtered samples at MW-1 and MW-6. Concentrations of copper and lead were reduced to non-detect levels in the filtered samples. Although chromium was not reduced to non-detect levels, it was reduced in concentration for every filtered sample. Filtered groundwater samples should be more representative of actual groundwater quality at the Site than unfiltered samples.

⁵ Hart Crowser, Inc. (2002). *Human Health and Ecological Baseline Risk Assessment, Terminal 1 South, 2100 NW Front Avenue, Portland, Oregon*. January 18, 2002.

- Generally, the second groundwater sampling event results are consistent with the previous event, with a general decline in PAH, metals, and TSS concentrations detected. However, there was an increase in arsenic at MW-4, and slight increases of dissolved arsenic at MW-7, and total copper and lead at MW-6.

In summary, the results of the groundwater sampling at the monitoring wells indicates only total (unfiltered) lead at MW-7 was detected above its respective EBSL. However, the concentration of lead dropped to below detectable levels in the filtered sample. PAHs, although detected at most wells at the site, were found at concentrations well below EBSLs. The source of PCE detected in MW-1 is likely from an up-gradient off-site source. Arsenic may be attributed to naturally occurring background conditions.

4.4 Groundwater Data Validation

The analytical data collected by HAI for the groundwater sampling conducted in January 2002 was assessed to ensure that it is of acceptable quality. The analytical data was subjected to a review of all field and laboratory quality assurance/quality control (QA/QC) measures.

A review of the groundwater QA/QC data is summarized below:

- All samples were analyzed within appropriate holding times.
- All samples showed acceptable surrogate recoveries with one exception as described below.
- No contaminants were detected in laboratory method blanks.
- Equipment calibration and laboratory control standards (LCS) were within acceptable ranges.
- All matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within acceptable ranges.
- All continuing calibration verification (CCV) standards were within acceptable limits.
- All MS/MSD relative percent differences (RPD) were within acceptable limits.
- All laboratory batch sample duplicates showed acceptable RPDs, with one exception described below.
- The field groundwater duplicate sample collected from MW-1 and analyzed for VOCs was within a RPD of 15.5% for PCE; The field groundwater duplicate sample collected from MW-2 and analyzed for PAHs, metals, and TSS was within a RPD of 5.5% for PAHs, 24% for chromium, less than 3% for other metals, and 42% for TSS.
- The field equipment blank did not detect PAHs or VOCs above laboratory reporting limits.
- The trip blank did not detect VOCs above laboratory reporting limits.

Data qualifiers identified in the laboratory analytical reports are described in detail to assess their impact on groundwater data quality.

NCA Report No. P2010646, Page 32 of 42 (Appendix C): Concentrations of arsenic and copper in the laboratory duplicate are flagged "Q-06" indicating analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit. However, since the original result was less than five times the laboratory reporting level, the RPD is not applicable and the batch analysis remains valid for these compounds.

Based on the QA/QC review, it appears the data collected during the January 2002 sampling event are of sufficient quality for groundwater quality assessment purposes.

5. Conclusions

Monitoring well sampling activities were conducted at the Terminal 1 South property in January 2002. Groundwater samples were collected from all seven monitoring wells at the site.

Groundwater elevations in six of seven monitoring wells in November 2001 and January 2002 indicate a general groundwater flow directions towards the Willamette River. Groundwater elevations at MW-5 appear anomalously high, possibly due to sea wall construction.

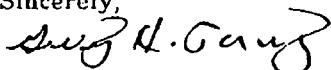
The second groundwater sampling event results are consistent with the previous event, with typically lower PAH, metals, and TSS concentrations detected. The groundwater sampling results at the seven monitoring wells indicate that only total (unfiltered) lead at MW-7 was detected at a concentration that exceeded its EBSL. However, the lead concentration dropped to below detectable levels in the filtered sample. The source of the PCE detected in groundwater at MW-1 is likely from an up-gradient, off-site source. PAHs were found at concentrations well below EBSLs. Arsenic may be attributed to naturally occurring background conditions.

6. Limitations

The samples discussed in this report were collected, analyzed, and interpreted following the standards of care, skill, and diligence ordinarily provided by a professional in the performance of similar services as of the time the services were performed. This report and the conclusions and/or recommendations contained in it are based solely upon physical sampling and analytical activities that were conducted. The data presented in this report document only the concentrations of the target analytes in the particular sample and not the property as a whole.

If there are any comments or questions, please contact the undersigned. Thank you for the opportunity to be of service.

Sincerely,



Guy H. Tanz, R.G.
Associate

HAHN AND ASSOCIATES, INC.

POPT1S601040

GLOSSARY OF ABBREVIATIONS

bgs	below existing ground surface
BTEX	benzene, toluene, ethylbenzene, xylene
EBSL	ecological risk-based screening level
ESA	environmental site assessment
EPA	U.S. Environmental Protection Agency
HAI	Hahn and Associates, Inc.
HCID	hydrocarbon identification
msl	mean sea level
NW	northwest
OAR	Oregon Administrative Rules
DEQ	Oregon Department of Environmental Quality
PAHs	polynuclear aromatic hydrocarbons
Port	the Port of Portland
ppb	parts per billion
ppm	parts per million
PRGs	EPA Region 9 Preliminary Remedial Goals
RBSL	risk-based screening level
RI	remedial investigation
TPH	total petroleum hydrocarbons
ug/l	micrograms per liter (ppb)
VOCs	volatile organic compounds

HAHN AND ASSOCIATES, INC.

TABLES

TABLE 1 - Revised Groundwater Sampling Plan

Groundwater Sampling
 Port of Portland Marine Terminal 1 South
 2100 NW Front Avenue
 Portland, Oregon

HAI Project No. 5106

Monitoring Event ==>	September/October 2001 (completed)							January 2002 (completed)								
	EPA Method ==>		8260B	TPH-Dx ¹	8270 SIM	8270	6010/7000	160.1	EPA Method ==>		8260B	TPH-Dx ¹	8270 SIM	8270	6010/7000	160.1
	Analyte ==>	VOCs	Diesel and Oil	PAHs	DEHP	Unfiltered Metals ¹	Filtered Metals ¹	TSS	VOCs	Diesel and Oil	PAHs	DEHP	Unfiltered Metals ¹	Filtered Metals ¹	TSS	
MW-1		X	X	X	X	X ²	X	X	X		X		X	X	X	
MW-2				X	X	X	X	X	X	X	X		X	X	X	
MW-3				X		X	X	X	X			X		X	X	
MW-4		X	X	X		X ³	X	X			X		X	X	X	
MW-5				X		X	X	X	X	X	X		X	X	X	
MW-6 (background)				X	X	X	X	X			X		X	X	X	
MW-7				X	X	X	X	X	X		X		X	X	X	
Duplicate		MW-1	MW-1	MW-1	MW-1	MW-1 ²	MW-1	MW-1	MW-1		MW-2		MW-2	MW-2	MW-2	
Equipment Blank		X				X			X		X					
Trip Blank									X							
Total Samples ==>		4	3	8	6	8	8	8	8	2	9	0	8	8	8	

NOTE:

- 1 = arsenic, copper, lead
- 2 = cadmium, chromium, mercury, nickel, silver, and zinc
- 3 = by Northwest Method
- 4 = arsenic, chromium, copper, and lead
- X = Collect and analyze for indicated analyte
- DEHP = bis(2ethylhexyl)phthalate

EPA = U. S. Environmental Protection Agency

PAHs = polynuclear aromatic hydrocarbons

TPH = total petroleum hydrocarbons

TSS = total suspended solids

VOCs = volatile organic compounds

TABLE 2
Summary of Water Level Measurements and Elevations

Groundwater Sampling
 Port of Portland Marine Terminal 1 South
 2100 NW Front Avenue
 Portland, Oregon

HAI Project No. 5106

Elevation of Top of Casing

Survey Date	Elevation of Top of Casing (feet msl) ¹						
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
10-Sep-01	30.39	28.16	27.56	29.84	33.04	30.25	33.51

Measured Water Level

Date Measured	Measured Water Level (feet btc)						
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
28-Sep-01	18.53	23.97	23.46	24.93	26.96	22.41	29.25
30-Oct-01	18.66	24.11	23.43	25.00	26.95	22.37	28.89
28-Nov-01	18.35	21.96	21.27	22.26	25.12	20.72	25.73
17-Jan-02	17.60	20.12	19.60	20.30	23.39	17.90	25.45

Elevation Data

Date/Time Measured	Groundwater Elevation (feet msl) ¹						
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
28-Sep-01	11.86	4.19	4.10	4.91	6.08	7.84	4.26
30-Oct-01	11.73	4.05	4.13	4.84	6.09	7.88	4.62
28-Nov-01	12.04	6.20	6.29	7.58	7.92	9.53	7.78
17-Jan-02	12.79	8.04	7.96	9.54	9.65	12.35	8.06

NOTE:
 btc - below top of casing
 msl = mean sea level

1 = City of Portland datum

TABLE 3 - Summary of Analytical Results for Groundwater Samples

Groundwater Sampling Event
 Port of Portland Marine Terminal 1 South
 2100 NW Front Avenue
 Portland, Oregon

Project No. 5106

Boring Number	Screen Interval	Sample Number	Sample Date	Analytical Results																			EPA Method 160.1					
				NW TPH-Ds								VOCs by EPA Method 8260B				EPA Method 8270			Total and Dissolved Metals by EPA Method 6010/7000 Series									
				Diesel Range	Oil Range	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Other VOCs*	Total P-HCs (Table 4)	DEHP	Arsenic	Arsenic (filtered)	Cadmium	Chromium (filtered)	Copper	Copper (filtered)	Lead	Lead (filtered)	Mercury	Nickel	Silver	Zinc	Total Suspended Solids		
(feet bgs)																												
First Groundwater Sampling Event																												
MW-1	17-32	5106-011001-108	1-Oct-01	416.	ND>500	ND>1	ND>1	ND>1	ND>2	ND>2	PCE=2.76	ND	ND>10	2.01	ND>1	ND>1	3.25	-	4.74	2.29	1.16	L37	ND>0.2	5.25	ND>1	10.6	36.	
MW-1 (duplicate)	17-32	5106-011001-109	1-Oct-01	338.	ND>500	ND>1	ND>1	ND>1	ND>2	ND>2	PCE=3.29	ND	ND>10	1.06	ND>1	ND>1	2.65	-	3.48	2.03	ND>1	ND>1	ND>0.2	4.49	ND>1	8.43	35.	
MW-2	17-32	5106-011001-107	1-Oct-01	-	-	-	-	-	-	-	-	2.1	ND>10	12.8	14.5	-	-	ND>2	ND>2	ND>1	ND>1	-	-	-	-	65.		
MW-3	17-32	5106-010928-103	28-Sep-01	-	-	-	-	-	-	-	-	0.3	-	14.	11.	-	-	40.2	ND>2	35.2	ND>1	-	-	-	-	720.		
MW-4	17-32	5106-010928-104	28-Sep-01	ND>250	ND>500	ND>1	ND>1	ND>1	ND>2	ND>2	ND	1.7	-	6.15	6.51	ND>1	5.12	4.48	ND>2	2.40	ND>1	ND>0.2	3.86	ND>1	9.06	130.		
MW-5	19-34	5106-010928-103	28-Sep-01	-	-	-	-	-	-	-	-	1.8	-	12.1	11.3	-	-	2.95	ND>2	1.44	ND>1	-	-	-	-	108.		
MW-6	17-32	5106-010928-103	28-Sep-01	-	-	-	-	-	-	-	-	ND	ND>10	2.72	3.65	-	-	2.51	ND>2	ND>1	ND>1	-	-	-	-	11.6	50.	
MW-7	17-32	5106-011001-105	1-Oct-01	-	-	-	-	-	-	-	-	0.1	ND>10	1.38	ND>1	-	-	ND>2	ND>2	4.47	ND>1	-	-	-	-	ND>20		
Equipment Blank	-	5106-011001-110	1-Oct-01	-	-	ND>1	ND>1	ND>1	ND>2	ND>2	ND	-	ND>10	-	-	-	-	-	-	-	-	-	-	-	-	-		
Second Groundwater Sampling Event																										87.		
MW-1	17-32	5106-020118-109	18-Jan-02	-	-	ND>1	ND>1	ND>1	ND>2	ND>2	PCE=3.06	ND	-	1.2	ND>1	-	2.52	1.43	2.04	ND>2	ND>1	ND>1	-	-	-	-	87.	
MW-1 (duplicate)	17-32	5106-020118-110	18-Jan-02	-	-	ND>1	ND>1	ND>1	ND>2	ND>2	PCE=2.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
MW-2	17-32	5106-020118-107	18-Jan-02	-	-	ND>1	ND>1	ND>1	ND>2	ND>2	ND	1.	-	10.8	11.	-	1.89	1.05	ND>2	ND>2	ND>1	ND>1	-	-	-	-	19.	
MW-2 (duplicate)	17-32	5106-020118-108	18-Jan-02	ND>250	ND>500	ND>1	ND>1	ND>1	ND>2	ND>2	-	1.1	-	10.9	11.3	-	1.49	1.35	ND>2	ND>2	ND>1	ND>1	-	-	-	-	29.	
MW-3	17-32	5106-020118-106	18-Jan-02	-	-	-	-	-	-	-	ND	0.4	-	3.92	4.28	-	1.56	1.2	2.29	ND>2	ND>1	ND>1	-	-	-	-	15.	
MW-4	17-32	5106-020117-104	17-Jan-02	-	-	-	-	-	-	-	-	0.9	-	9.23	9.93	-	2.26	1.14	ND>2	ND>2	ND>1	ND>1	-	-	-	-	10.	
MW-5	19-34	5106-020118-105	18-Jan-02	ND>250	ND>500	ND>1	ND>1	ND>1	ND>2	ND>2	chloroform=2.09	0.6	-	1.56	1.6	-	1.31	ND>1	ND>2	ND>1	ND>1	-	-	-	-	17.		
MW-6	17-32	5106-020117-102	17-Jan-02	-	-	ND>1	ND>1	ND>1	ND>2	ND>2	-	ND	-	1.16	ND>1	-	2.81	1.06	3.31	ND>2	1.86	ND>1	-	-	-	-	30.	
MW-7	17-32	5106-020117-103	17-Jan-02	-	-	ND>1	ND>1	ND>1	ND>2	ND>2	ND	0.2	-	1.32	1.42	-	1.69	1.3	ND>2	ND>2	3.94	ND>1	-	-	-	-	12.	
Equipment Blank	-	5106-020118-111	18-Jan-02	-	-	ND>1	ND>1	ND>1	ND>2	ND>2	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Trip Blank	-	5106-020117-101	17-Jan-02	-	-	ND>1	ND>1	ND>1	ND>2	ND>2	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
DEQ Ecological Screening Benchmark Value (Freshwater Aquatic Receptor) -->				-	130.	9.8	7.3	13.	620.	PCE=840	Chloroform=1,240.	3.	150.	150.	2.2	74.	74.	9.	0.	2.6	2.6	0.77	52.	0.12	120.	-		

Note:

bgs = below ground surface
 DEHP = diethylhexylphthalate
 DEQ = Oregon Department of Environmental Quality
 EPA = U.S. Environmental Protection Agency
 mg/l = milligrams per liter (ppm)
 PCE = tetrachloroethene

ND = not detected above detection limits indicated
 ppm = parts per million
 ug/l = micrograms per liter (ppb)

TPH = total petroleum hydrocarbons
 ug/l = micrograms per liter
 VOCs = volatile organic compounds

1 = The hydrocarbon pattern suggests biogenic interference

Shaded = Concentration in excess of Ecological Benchmark Screening Value

TABLE 4 - Summary of Analytical Results for Groundwater Samples: PAHs by EPA Method 8270

Groundwater Sampling Event
 Port of Portland Marine Terminal 1 South
 2100 NW Front Avenue
 Portland, Oregon

Project No. 5106

Monitoring Well Number	Screen Interval (feet bgs)	Sample Number	Sample Date	Analytical Results															Total PAHs	
				Carcinogenic PAHs								Non-Carcinogenic PAHs								
				Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3- <i>cd</i>)pyrene	Acenaphthene	Acenaphthylene	Anthracene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	
First Groundwater Sampling Event																				
MW-1	17 - 32	5106-011001-108	1-Oct-01	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND	
MW-1(Duplicate)	17 - 32	5106-011001-109	1-Oct-01	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND	
MW-2	17 - 32	5106-011001-107	1-Oct-01	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	0.121	ND>0.1	0.115	ND>0.1	ND>0.1	1.25	0.564	2.1	
MW-3	17 - 32	5106-010928-103	28-Sep-01	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	0.192	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	0.138	ND>0.1	0.3
MW-4	17 - 32	5106-010928-104	28-Sep-01	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	0.72	ND>0.1	ND>0.1	ND>0.1	ND>0.1	0.291	0.576	0.123	1.7
MW-5	19 - 34	5106-010928-102	28-Sep-01	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	0.448	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	1.16	0.172	1.8
MW-6	17 - 32	5106-010928-105	28-Sep-01	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND	
MW-7	17 - 32	5106-011001-106	1-Oct-01	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	0.153	0.153	0.3
Second Groundwater Sampling Event																				
MW-1	17 - 32	5106-020118-109	18-Jan-02	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND	
MW-2	17 - 32	5106-020118-107	18-Jan-02	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	0.104	ND>0.1	0.107	ND>0.1	ND>0.1	0.555	0.23	1.	
MW-2(duplicate)	17 - 32	5106-020118-108	18-Jan-02	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	0.11	ND>0.1	0.108	ND>0.1	ND>0.1	0.62	0.251	1.1	
MW-3	17 - 32	5106-020118-106	18-Jan-02	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	0.125	ND>0.1	ND>0.1	ND>0.1	ND>0.1	0.175	0.119	0.4	
MW-4	17 - 32	5106-020117-104	17-Jan-02	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	0.115	ND>0.1	ND>0.1	ND>0.1	ND>0.1	0.608	0.205	0.9	
MW-5	19 - 34	5106-020118-105	18-Jan-02	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	0.277	ND>0.1	ND>0.1	ND>0.1	ND>0.1	0.32	ND>0.1	0.6	
MW-6	17 - 32	5106-020117-102	17-Jan-02	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND	
MW-7	17 - 32	5106-020117-103	17-Jan-02	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	0.102	0.113	0.4	
Equipment Blank		6106-020118-111	18-Jan-02	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.2	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND>0.1	ND	
DFQ Ecological Screening Benchmark Value (freshwater aquatic receptor) ->				0.027	0.014	#	#	#	#	V	#	520.	#	13.	6.16	3.9	620.	6.8	#	

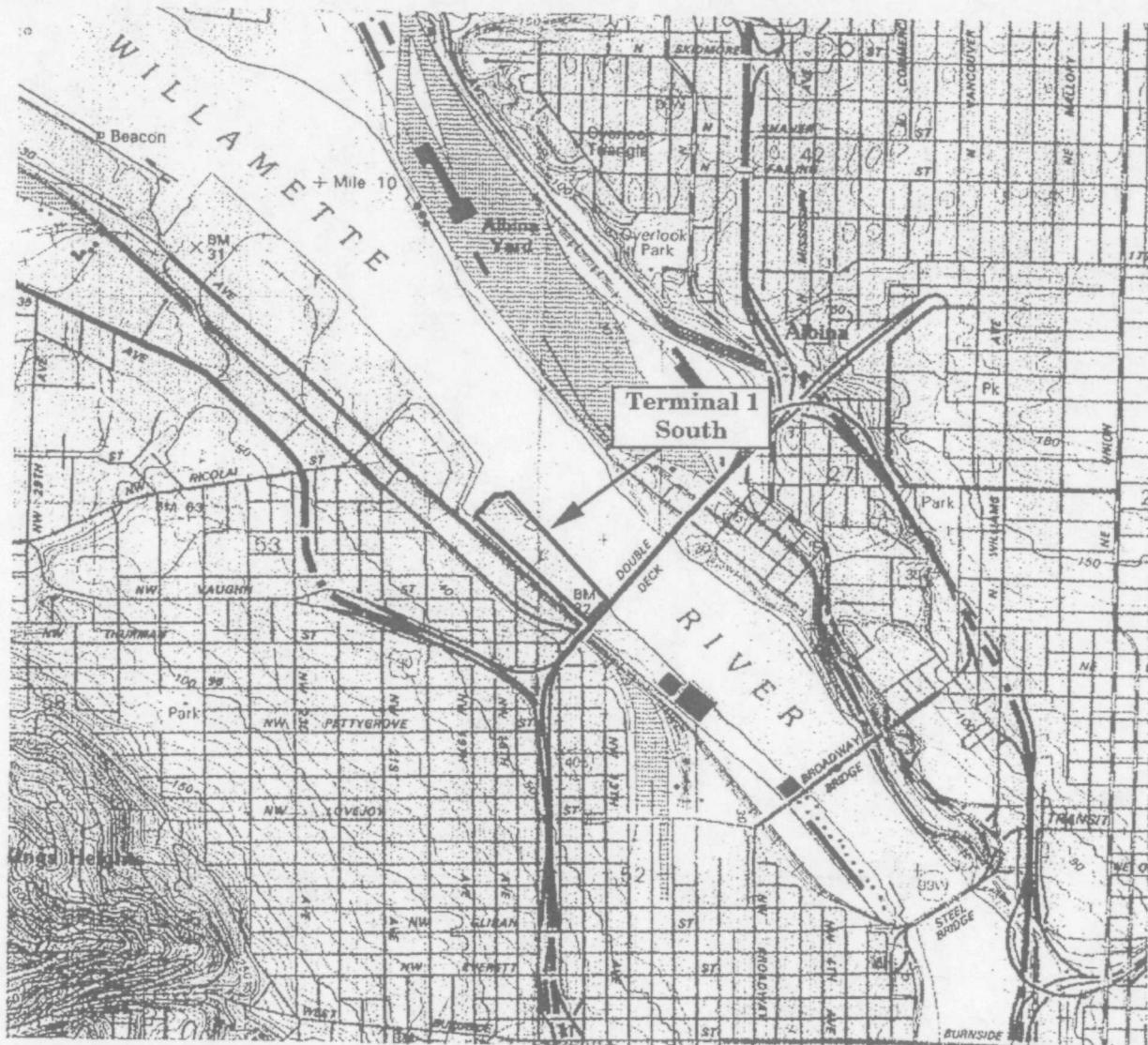
Note: # = Reference level not established
 bgs = below ground surface

EPA = U.S. Environmental Protection Agency
 ND = not detected above detection limit indicated

DEQ = Oregon Department of Environmental Quality
 PAHs = polynuclear aromatic hydrocarbons

ppb = parts per billion
 ug/l = micrograms per liter

FIGURES



0 2,000 4,000

Scale in Feet

Note: Base Map from the Portland, Oregon USGS 7.5-Minute Quadrangle, 1990
Contour Interval: 10 Feet

HAI Project
No. 5106

HAHN AND ASSOCIATES
INCORPORATED

February 2002

ENVIRONMENTAL MANAGEMENT
434 NW SIXTH AVENUE, SUITE 203
PORTLAND, OREGON 97209
503/796-0717

Location Map

Groundwater Sampling
Port of Portland Marine Terminal 1 South
2100 NW Front Avenue
Portland, Oregon

FIGURE

1

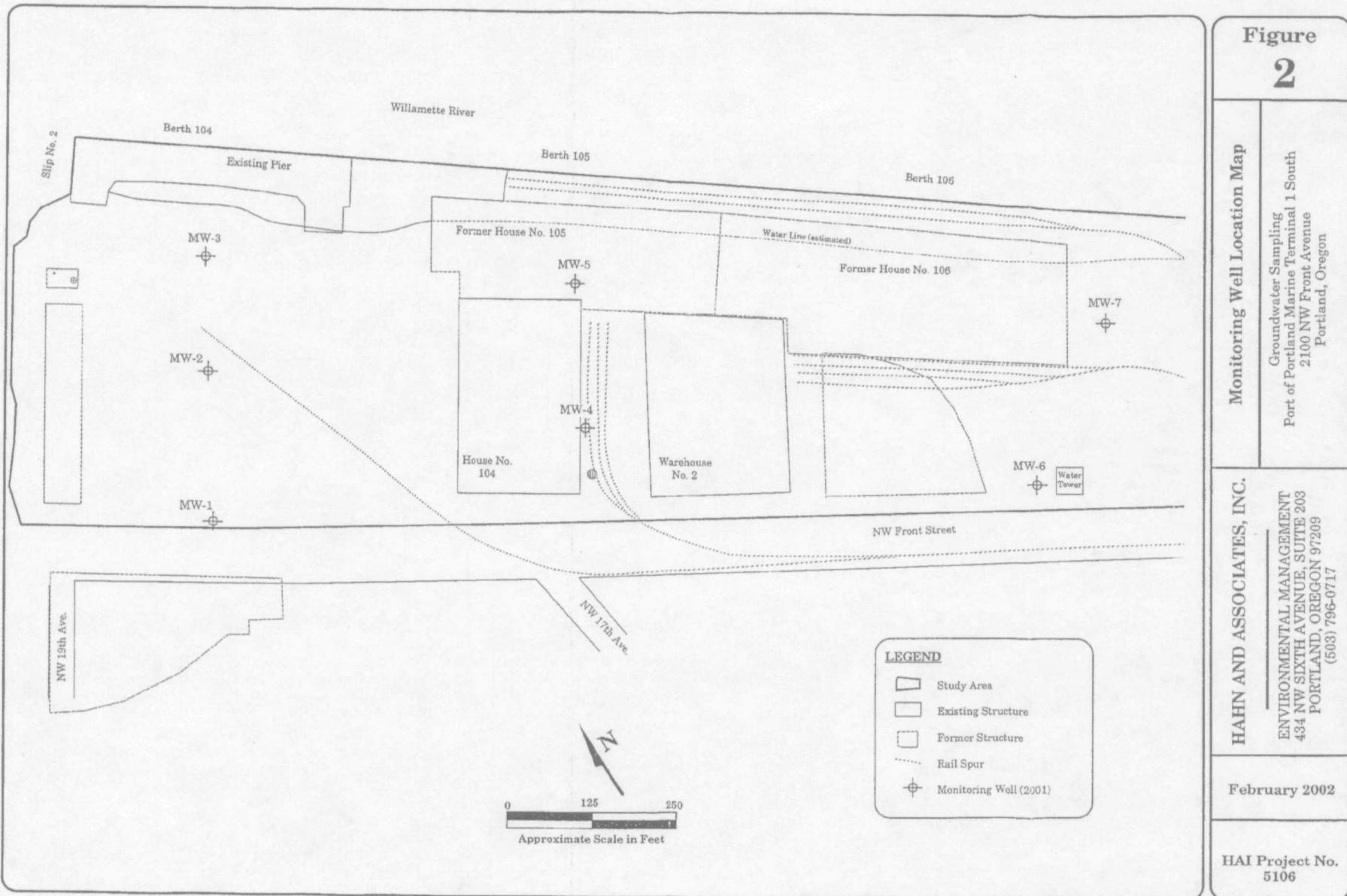
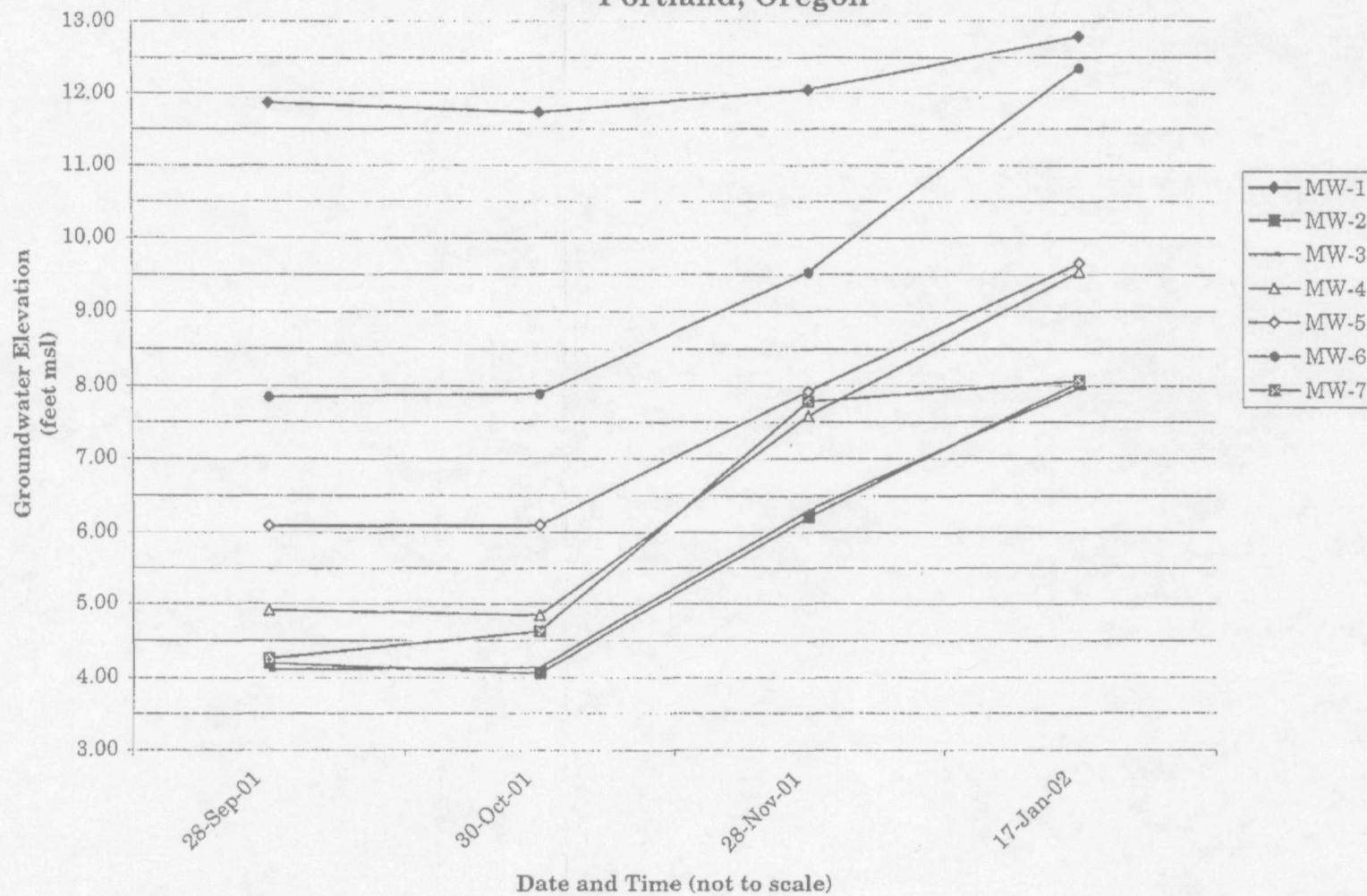
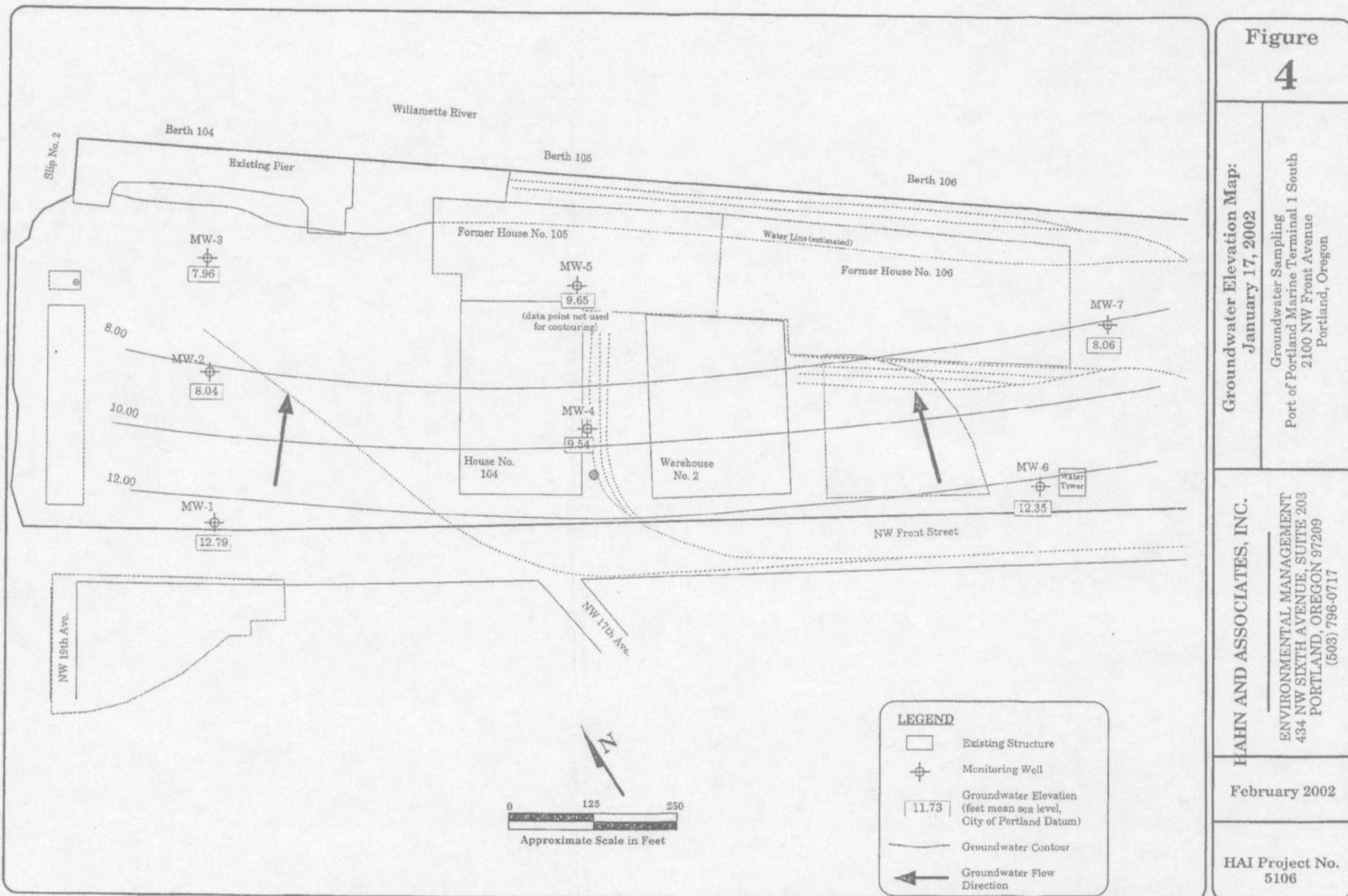


Figure 3
Groundwater Hydrograph
Marine Terminal 1 South
Portland, Oregon



Updated: 2/26/02 GHT
File: 5106-02 GW Elev- Event 2/ Fig 3 GW Hydrograph

HAHN AND ASSOCIATES, INC.
Project No. 5106



APPENDIX A

**Oregon Department of Environmental Quality Electronic Mail Regarding Revised
Groundwater Monitoring Plan:
January 14, 2002**

From: Rodney.Struck@deq.state.or.us
To: molluj@portptld.com
Cc: gtanz@hahnasoc.com
Subject: Port of Portland Terminal 1 South
Date: Mon, 14 Jan 2002 17:23:41 -0800

Joe,

I have reviewed the "Monitoring Well Installation and Groundwater Sampling Report" prepared for the Marine Terminal 1 South Site. This report was prepared by Hahn and Associates, Inc. and is dated December 19, 2001.

The report is well written and is accepted as final. However, DEQ recommends that the revised groundwater monitoring plan be revised to include the following analyses:

- * TPH-Dx: MW-2, MW-5
- * Metals: chromium, copper
- * VOCs: MW-5 and MW-7

Please give me a call if you have any questions.

Rod Struck
Oregon Department of Environmental Quality
Voluntary Cleanup and Portland Harbor Section
2020 SW 4th Avenue, Suite 400
Portland, Oregon 97201

Phone: (503) 229-5562
Fax: (503) 229-6899

visit our website at: www.deq.state.or.us

APPENDIX B
Monitoring Well Sampling Summary Sheets

Water Elevation Collection Summary Log

HAI Project Number: 5106

HAI Project Acronym: TONDVL

Sampler: Derek Sandoz

Date: 26 Nov-01

Location	Time	Static Water Level (feet btoc)
MW-1	14:15	18.36
	15:15	18.35
*MW-2	14:07	21.97
	15:09	21.96
MW-3	14:00	24.27
	15:01	21.27
MW-4	13:45	22.62
	14:44	22.45
	15:35	22.28
	15:44	22.26

Location	Time	Static Water Level (feet btoc)
MW-5	13:50	25.19
	14:55	25.12
MW-6	13:20	20.79
	14:30	20.72
MW-7	13:30	26.67
	14:38	26.15
	15:20	25.77
	15:30	25.73

* MW-2 is in a depression in the asphalt >
began filling w/ water that is running through the
depression toward the nearby drain

Water Elevation Collection Summary Log

HAI Project Number: 5106

HAI Project Acronym: TONDVL

Sampler: Derek Sandoz

Date 17-Jun-02

Location	Time	Static Water Level (feet btoc)
MW-1	0930	17.60
	1020	17.60
MW-2	0940	20.10
	1030	20.12
MW-3	0900	20.31
	0950	19.61
	1040	19.60
MW-4	0900	20.31
	1015	20.30

Location	Time	Static Water Level (feet btoc)
MW-5	0920	23.39
	1022	23.39
MW-6	0830	17.90
	1000	17.90
MW-7	0835	25.46
	1005	25.45

Monitoring Well Sampling Summary Sheet

WELL NUMBER: M W - 1

General Information	
Project Name: Marine Terminal 1 South	
HAI Project Number: 5106	
Date:	Jun 18 2007
Sampling Personnel:	DCS
Purge Method:	Submersible Pump
Sampling Method:	Sub Pump / Disp. Bunker
Sample Information	
Sample Date:	01/15/02
Sample Time:	16:30
Sample Number:	5106-0109 C20119 - 109

Purge Volume Calculation					
Well Depth (ft)	Static Water Level (ft)	Water Column (ft)	Conversion Factor (gal/foot)	One Well Vol (gal)	Three Well Volumes (gal)
33.5	17.60	15.9	0.17	2.7	8.10

2' well = 0.17 gallons/linear ft 4" well = 0.66 gallons/linear ft

Sample Containers			
Number	Type	Preservative	Analytical Parameters
3 ✓	40ml VOA	HCL	VOCs by EPA 8260B
	1 l Amber	none	TPH as diesel and oil by NW TPH-Dx
1 ✓	1 l Amber	none	PAHs by EPA 8270 SIM
	1 l Amber	none	DEHP by EPA 8270
1 ✓	250 ml plastic	none	TSS by EPA 160.1
1 ✓	250 ml plastic	nitric	filtered metals by EPA 6010
1 ✓	250 ml plastic	nitric	unfiltered metals by EPA 6010

Purge Water Disposition 3
Drum No. 38 + DECON H₂O

Monitoring Well Sampling Summary Sheet

WELL NUMBER: MW-2

General Information	
Project Name: Marine Terminal 1 South	
HAI Project Number: 5106	
Date:	Jan 18 2002
Sampling Personnel:	Derek Sander
Purge Method:	Submersible Pump
Sampling Method:	Sub. Pump / Dsp. Baier

Purge Volume Calculation					
Well Depth (ft)	Static Water Level (ft)	Water Column (ft)	Conversion Factor (gal/foot)	One Well Vol (gal)	Three Well Volumes (gal)
33	20.12	12.88	0.17	2.18	6.56

2" well = 0.17 gallons/linear ft 4" well = 0.66 gallons/linear ft

Sample Information	
Sample Date:	1/18/02
Sample Time:	14:55
Sample Number: 5106-0109 020118 - 107	

Sample Containers			
Number	Type	Preservative	Analytical Parameters
3 ✓	40ml VOA	HCL	VOCs by EPA 8260B
1 ✓	1 l Amber	none	TPH as diesel and oil by NW TPH-Dx
2 ✓	1 l Amber	none	PAHs by EPA 8270 SIM
	1 l Amber	none	DEHP by EPA 8270
2 ✓	250 ml plastic	none	TSS by EPA 160.1
2 ✓	250 ml plastic	nitric	filtered metals by EPA 6010
2 ✓	250 ml plastic	nitric	unfiltered metals by EPA 6010

Purge Water Disposition
Drum No. 37

Monitoring Well Sampling Summary Sheet

WELL NUMBER: MW-3

Purge Water Disposition

Drum No. 37

Monitoring Well Sampling Summary Sheet

WELL NUMBER: MW - 4

General Information	
Project Name: Marine Terminal 1 South	
HAI Project Number: 5106	
Date:	Jan 17 2007
Sampling Personnel: DCS	
Purge Method:	Submersible Pump
Sampling Method:	Submersible Pump

Purge Volume Calculation					
Well Depth (ft)	Static Water Level (ft)	Water Column (ft)	Conversion Factor (gal/foot)	One Well Vol (gal)	Three Well Volumes (gal)
32	20.30	11.7	0.17	1.98	5.96

2' well = 0.17 gallons/linear ft 4" well = 0.66 gallons/linear ft

Sample Information

Sample Date: 1/17/07

Sample Time: 1725

Sample Number: 5106-0109-020117-1C4

Sample Containers			
Number	Type	Preservative	Analytical Parameters
	40ml VOA	HCL	VOCs by EPA 8260B
	1 l Amber	none	TPH as diesel and oil by NW TPH-Dx
1 ✓	1 l Amber	none	PAHs by EPA S270 SIM
	1 l Amber	none	DEHP by EPA 8270
1 ✓	250 ml plastic	none	TSS by EPA 160.1
1 ✓	250 ml plastic	nitric	filtered metals by EPA 6010
1 ✓	250 ml plastic	nitric	unfiltered metals by EPA 6010

Purge Water Disposition
Drum No. 37

Monitoring Well Sampling Summary Sheet

WELL NUMBER: MW - 5

General Information	
Project Name: Marine Terminal 1 South	
HAI Project Number: 5106	
Date:	Jan 18 2002
Sampling Personnel: DCS	
Purge Method:	Submersible Pump
Sampling Method:	S. b. Pump / Dredge

Purge Volume Calculation					
Well Depth (ft)	Static Water Level (ft)	Water Column (ft)	Conversion Factor (gal/foot)	One Well Vol (gal)	Three Well Volumes (gal)
34.5	23.39	11.11	0.17	1,883	5.66

2' well = 0.17 gallons/linear ft 4" well = 0.66 gallons/linear ft

Sample Information	
Sample Date:	1/18/02
Sample Time:	2300
Sample Number:	5106-0109 020118-105

Sample Containers			
Number	Type	Preservative	Analytical Parameters
3 ✓	40ml VOA	HCL	VOCs by EPA 8260B
1 ✓	1 l Amber	none	TPH as diesel and oil by NW TPH-Dx
1 ✓	1 l Amber	none	PAHs by EPA 8270 SIM
	1 l Amber	none	DEHP by EPA 8270
1 ✓	250 ml plastic	none	TSS by EPA 160.1
1 ✓	250 ml plastic	nitric	filtered metals by EPA 6010
1 ✓	250 ml plastic	nitric	unfiltered metals by EPA 6010

Purge Water Disposition Drum No. 37

Monitoring Well Sampling Summary Sheet

WELL NUMBER: MW-6

General Information

Project Name: Marine Terminal I South

HAI Project Number: 5106

Date: Jan 17 2002

Sampling Personnel: DCS

Purge Method: Submersible Pump

Sampling Method: Submersible Pump

Purge Volume Calculation					
Well Depth (ft)	Static Water Level (ft)	Water Column (ft)	Conversion Factor (gal/foot)	One Well Vol (gal)	Three Well Volumes (gal)
32	17.90	14.1	0.17	2.39	7.19

2' well = 0.17 gallons/linear ft 4" well = 0.66 gallons/linear ft

Sample Information	
Sample Date:	1/17/02
Sample Time:	13:45
Sample Number:	5106-010917-1c2

Sample Containers			
Number	Type	Preservative	Analytical Parameters
	40ml VOA	HCL	VOCs by EPA 8260B
	1 l Amber	none	TPH as diesel and oil by NW TPH-Dx
1 ✓	1 l Amber	none	PAHs by EPA 8270 SIM
	1 l Amber	none	DEHP by EPA 8270
1 ✓	250 ml plastic	none	TSS by EPA 160.1
1 ✓	250 ml plastic	nitric	filtered metals by EPA 6010
1 ✓	250 ml plastic	nitric	unfiltered metals by EPA 6010

Purge Water Disposition
Drum No. 37

Monitoring Well Sampling Summary Sheet

WELL NUMBER: MW - 7

APPENDIX C

**Laboratory Results and Chain-of-Custody Documentation:
January 2002 Groundwater Samples**

P2A0518 1/2

HAHN AND ASSOCIATES, INC.					Laboratory	NCA	CHAIN OF CUSTODY			
Environmental Management										
434 NW Sixth Avenue, Suite 203 • Portland OR 97209 (503) 796-0717 • Fax (503) 227-2209					Lab Project No.		Chain of Custody No.			
Project Manager	GUY TANZ				Liquid with Sediment Sample			Samples Received at 4C (Y or N)		
Project No.	S106				Test Filtrate	Test Sediment	Test Both	Appropriate Containers Used (Y or N)		
Project Name	T1 SOUTH				Multi-Phase Sample			Provide Verbal Results (Y or N)		
Collected by	DECREE SANDS				Test One (which)	Test Separately	Shake	Provide Preliminary Fax Results		
Comments Sample Number Prefix: S106 C70117					Matrix	Analyses to be Performed				
		Soil	Water	Other	Number of Containers	EPA 8260 B (VOC's)	NW TPH-D ^x	EPA 8270 SIM (PAH's)	EPA 6010/7000 (UNFILTERED)	
									EPA 6010/7000 (FILTERED)	
									EPA 160.1 (TSS)	
Lab ID	Sample #	Date	Time	Sample Description					RUSH	Remarks
	101	1/17/02	0800	TRIP BUNK	✓	3	*			
	102		1345	MW-6	✓	4	*	*	*	
	103		1520	MW-7	✓	7	*	*	*	
	104		1925	MW-4	✓		*	*	*	
Relinquished by	Duel Sandz		Company	HAI	Date	1-21-02	Time	1310	Received by	
Relinquished by			Company	NSA	Date	1-21-02	Time	1310	Received by	Karen Eisinger
			Company	NCA					Company	NCA

P.2470518 2/2

HAHN AND ASSOCIATES, INC.					Laboratory	NCA	CHAIN OF CUSTODY							
Environmental Management														
434 NW Sixth Avenue, Suite 203 • Portland OR 97209 (503) 796-0717 • Fax (503) 227-2209					Lab Project No.		Chain of Custody No. 2							
Project Manager	JAY TANZ		Liquid with Sediment Sample			Samples Received at 4C (Y or N)								
Project No.	SICK		Test Filtrate	Test Sediment	Test Both	Appropriate Containers Used (Y or N)								
Project Name	T1 SWA		Multi-Phase Sample			Provide Verbal Results (Y or N)								
Collected by	DARREN SAWYER		Test One (which)	Test Separately	Shake	Provide Preliminary Fax Results								
Comments Sample Number Prefix: SICK-C2C1E PLEASE BILL PORT OF PORTLAND DIRECTLY.					Matrix	Analyses to be Performed								
Lab ID	Sample #	Date	Time	Sample Description	Soil	Water	Other	Number of Containers						
105	1/16/02	1100	MW-5		*	*	*	EPA 824C-3 (SOC)	NITROPH-D X	EPA 6C10/1C8C (UNFILTERED)		RUSH		
106		1230	MW-3		*	*	*	EPA 824C-3 (PAHs)	EPA 6C10/1C8C (UNFILTERED)					
107		1455	MW-2		*	*	*	EPA 824C-3 (PAHs)	EPA 6C10/1C8C (UNFILTERED)					
108		1500	MW-2 DUP		*	*	*	EPA 6C10/1C8C (UNFILTERED)	EPA 6C10/1C8C (UNFILTERED)					
109		1630	MW-1		*	*	*	EPA 6C10/1C8C (UNFILTERED)	EPA 6C10/1C8C (UNFILTERED)					
110		1635	MW-1 DUP		*	*	*	EPA 6C10/1C8C (UNFILTERED)	EPA 6C10/1C8C (UNFILTERED)					
111		1655	EQ BLANK		*	*	*	EPA 6C10/1C8C (UNFILTERED)	EPA 6C10/1C8C (UNFILTERED)					
Relinquished by <i>D. Sawyer</i>					Company	H.A.I	Date	1-21-02	Time	1340	Received by	<i>John Doe</i>	Company	NCA
Relinquished by <i>John Doe</i>					Company	NCA	Date	1-21-02	Time	1340	Received by	<i>John Doe</i>	Company	NCA



RECEIVED FEB - 8 2002

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9230
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

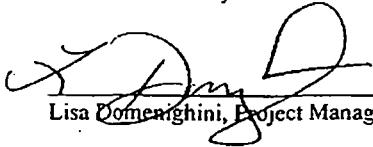
Reported:
02/04/02 14:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5106020117-101	P2A0518-01	Water	01/17/02 08:00	01/21/02 13:40
5106020117-102	P2A0518-02	Water	01/17/02 13:45	01/21/02 13:40
5106020117-103	P2A0518-03	Water	01/17/02 15:20	01/21/02 13:40
5106020117-104	P2A0518-04	Water	01/17/02 15:25	01/21/02 13:40
5106020118-105	P2A0518-05	Water	01/18/02 15:20	01/21/02 13:40
5106020118-106	P2A0518-06	Water	01/18/02 12:30	01/21/02 13:40
5106020118-107	P2A0518-07	Water	01/18/02 14:55	01/21/02 13:40
5106020118-108	P2A0518-08	Water	01/18/02 15:00	01/21/02 13:40
5106020118-109	P2A0518-09	Water	01/18/02 16:30	01/21/02 13:40
5106020118-110	P2A0518-10	Water	01/18/02 16:35	01/21/02 13:40
5106020118-111	P2A0518-11	Water	01/18/02 16:55	01/21/02 13:40

North Creek Analytical - Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.


Lisa Domenighini, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

1 of 42

POPT1S601067



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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7568

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-105 (P2A0518-05) Water								Sampled: 01/18/02 Received: 01/21/02	
Diesel Range Organics	ND	0.250	mg/l	1	NWTPH-Dx	01/24/02	01/24/02	2010720	
Heavy Oil Range Hydrocarbons	ND	0.500		-	-	-	-	-	
Surr: <i>I</i> -Chlorooctadecane	99.1 %	50-150							
5106020118-107 (P2A0518-07) Water								Sampled: 01/18/02 Received: 01/21/02	
Diesel Range Organics	ND	0.250	mg/l	1	NWTPH-Dx	01/24/02	01/24/02	2010720	
Heavy Oil Range Hydrocarbons	ND	0.500		-	-	-	-	-	
Surr: <i>I</i> -Chlorooctadecane	96.7 %	50-150							

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Total Metals per EPA 6000/7000 Series Methods

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020117-102 (P2A0518-02) Water Sampled: 01/17/02 Received: 01/21/02									
Arsenic	0.00116	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010644	
Chromium	0.00281	0.00100	"	-	"	-	"	-	
Copper	0.00331	0.00200	"	-	"	-	"	-	
Lead	0.00186	0.00100	"	-	"	-	"	-	
5106020117-103 (P2A0518-03) Water Sampled: 01/17/02 Received: 01/21/02									
Arsenic	0.00132	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010644	
Chromium	0.00169	0.00100	"	-	"	-	"	-	
Copper	ND	0.00200	"	-	"	-	"	-	
Lead	0.00394	0.00100	"	-	"	-	"	-	
5106020117-104 (P2A0518-04) Water Sampled: 01/17/02 Received: 01/21/02									
Arsenic	0.00923	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010644	
Chromium	0.00226	0.00100	"	-	"	-	"	-	
Copper	ND	0.00200	"	-	"	-	"	-	
Lead	ND	0.00100	"	-	"	-	"	-	
5106020118-105 (P2A0518-05) Water Sampled: 01/18/02 Received: 01/21/02									
Arsenic	0.00156	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010644	
Chromium	0.00131	0.00100	"	-	"	-	"	-	
Copper	ND	0.00200	"	-	"	-	"	-	
Lead	ND	0.00100	"	-	"	-	"	-	
5106020118-106 (P2A0518-06) Water Sampled: 01/18/02 Received: 01/21/02									
Arsenic	0.00392	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010644	
Chromium	0.00156	0.00100	"	-	"	-	"	-	
Copper	0.00229	0.00200	"	-	"	-	"	-	
Lead	ND	0.00100	"	-	"	-	"	-	

North Creek Analytical - Portland

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Environmental Laboratory Network

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POPT1S601069



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425.420.9200 fax 425.420.9210
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509.924.9200 fax 509.924.9250
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-107 (P2A0518-07) Water Sampled: 01/18/02 Received: 01/21/02									
Arsenic	0.0108	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010644	
Chromium	0.00189	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
5106020118-108 (P2A0518-08) Water Sampled: 01/18/02 Received: 01/21/02									
Arsenic	0.0109	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010644	
Chromium	0.00149	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
5106020118-109 (P2A0518-09) Water Sampled: 01/18/02 Received: 01/21/02									
Arsenic	0.00120	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010644	
Chromium	0.00252	0.00100	"	"	"	"	"	"	
Copper	0.00204	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	

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North Creek Analytical, Inc.
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POPT1S601070



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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-i, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Dissolved Metals per EPA 6000/7000 Series Methods

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020117-102 (P2A0518-02) Water Sampled: 01/17/02 Received: 01/21/02									
Arsenic	ND	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010646	
Chromium	0.00106	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
5106020117-103 (P2A0518-03) Water Sampled: 01/17/02 Received: 01/21/02									
Arsenic	0.00142	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010646	
Chromium	0.00130	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
5106020117-104 (P2A0518-04) Water Sampled: 01/17/02 Received: 01/21/02									
Arsenic	0.00993	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010646	
Chromium	0.00114	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
5106020118-105 (P2A0518-05) Water Sampled: 01/18/02 Received: 01/21/02									
Arsenic	0.00160	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010646	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
5106020118-106 (P2A0518-06) Water Sampled: 01/18/02 Received: 01/21/02									
Arsenic	0.00428	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010646	
Chromium	0.00120	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	

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Lisa Domenighini, Project Manager

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POPT1S601071



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425.420.9700 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.905.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Dissolved Metals per EPA 6000/7000 Series Methods

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-107 (P2A0518-07) Water Sampled: 01/18/02 Received: 01/21/02									
Arsenic	0.0110	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010646	
Chromium	0.00105	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
5106020118-108 (P2A0518-08) Water Sampled: 01/18/02 Received: 01/21/02									
Arsenic	0.0113	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010646	
Chromium	0.00135	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
5106020118-109 (P2A0518-09) Water Sampled: 01/18/02 Received: 01/21/02									
Arsenic	ND	0.00100	mg/l	1	EPA 6020	01/22/02	01/23/02	2010646	
Chromium	0.00143	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	

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POPT1S601072



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Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.986.9200 fax 503.986.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020117-101 (P2A0518-01) Water		Sampled: 01/17/02 Received: 01/21/02							
Acetone	ND	25.0	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
Benzene	ND	1.00							
Bromobenzene	ND	1.00							
Bromoform	ND	1.00							
Bromomethane	ND	5.00							
2-Butanone	ND	10.0							
n-Butylbenzene	ND	5.00							
sec-Butylbenzene	ND	1.00							
tert-Butylbenzene	ND	1.00							
Carbon disulfide	ND	10.0							
Carbon tetrachloride	ND	1.00							
Chlorobenzene	ND	1.00							
Chloroethane	ND	1.00							
Chloroform	ND	1.00							
Chloromethane	ND	5.00							
2-Chlorotoluene	ND	1.00							
4-Chlorotoluene	ND	1.00							
1,2-Dibromo-3-chloropropane	ND	5.00							
Dibromochloromethane	ND	1.00							
1,2-Dibromoethane	ND	1.00							
Dibromomethane	ND	1.00							
1,2-Dichlorobenzene	ND	1.00							
1,3-Dichlorobenzene	ND	1.00							
1,4-Dichlorobenzene	ND	1.00							
Dichlorodifluoromethane	ND	5.00							
1,1-Dichloroethane	ND	1.00							
1,2-Dichloroethane	ND	1.00							
1,1-Dichloroethene	ND	1.00							
cis-1,2-Dichloroethene	ND	1.00							
trans-1,2-Dichloroethene	ND	1.00							
1,2-Dichloropropane	ND	1.00							
1,3-Dichloropropane	ND	1.00							
2,2-Dichloropropane	ND	1.00							
1,1-Dichloropropene	ND	1.00							
cis-1,3-Dichloropropene	ND	1.00							
trans-1,3-Dichloropropene	ND	1.00							
Ethylbenzene	ND	1.00							

North Creek Analytical - Portland

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9250
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

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 Portland, OR 97209

Project: TI South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020117-101 (P2A0518-01) Water									
Hexachlorobutadiene	ND	2.00	ug/l	-	EPA 8260B	01/22/02	01/22/02	2010623	
2-Hexanone	ND	10.0	-	-	-	-	-	-	
Isopropylbenzene	ND	2.00	-	-	-	-	-	-	
p-Isopropyltoluene	ND	2.00	-	-	-	-	-	-	
4-Methyl-2-pentanone	ND	5.00	-	-	-	-	-	-	
Methyl tert-butyl ether	ND	1.00	-	-	-	-	-	-	
Methylene chloride	ND	5.00	-	-	-	-	-	-	
Naphthalene	ND	2.00	-	-	-	-	-	-	
n-Propylbenzene	ND	1.00	-	-	-	-	-	-	
Styrene	ND	1.00	-	-	-	-	-	-	
1,1,1,2-Tetrachloroethane	ND	1.00	-	-	-	-	-	-	
1,1,2,2-Tetrachloroethane	ND	1.00	-	-	-	-	-	-	
Tetrachloroethene	ND	1.00	-	-	-	-	-	-	
Toluene	ND	1.00	-	-	-	-	-	-	
1,2,3-Trichlorobenzene	ND	1.00	-	-	-	-	-	-	
1,2,4-Trichlorobenzene	ND	1.00	-	-	-	-	-	-	
1,1,1-Trichloroethane	ND	1.00	-	-	-	-	-	-	
1,1,2-Trichloroethane	ND	1.00	-	-	-	-	-	-	
Trichloroethene	ND	1.00	-	-	-	-	-	-	
Trichlorofluoromethane	ND	1.00	-	-	-	-	-	-	
1,2,3-Trichloropropane	ND	1.00	-	-	-	-	-	-	
1,2,4-Trimethylbenzene	ND	1.00	-	-	-	-	-	-	
1,3,5-Trimethylbenzene	ND	1.00	-	-	-	-	-	-	
Vinyl chloride	ND	1.00	-	-	-	-	-	-	
o-Xylene	ND	1.00	-	-	-	-	-	-	
m,p-Xylene	ND	2.00	-	-	-	-	-	-	
Surr: 4-BFB	94.0 %	84-118							
Surr: 1,2-DCA-d4	110 %	79-123							
Surr: Dibromofluoromethane	97.5 %	81-121							
Surr: Toluene-d8	98.0 %	87-111							

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POPT1S601074



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Portland, OR 97209

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite 8, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.363.9310 fax 541.382.7588

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020117-103 (P2A0518-03) Water		Sampled: 01/17/02 Received: 01/21/02							
Acetone	ND	25.0	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

North Creek Analytical, Inc.
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POPT1S601075



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 425.420.9200 fax 425.420.9210
 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020117-103 (P2A0518-03) Water									
Hexachlorobutadiene	ND	2.00	ug/l	-	EPA 8260B	01/22/02	01/22/02	2010623	
2-Hexanone	ND	10.0	-	-	-	-	-	-	
Isopropylbenzene	ND	2.00	-	-	-	-	-	-	
p-Isopropyltoluene	ND	2.00	-	-	-	-	-	-	
4-Methyl-2-pentanone	ND	5.00	-	-	-	-	-	-	
Methyl tert-butyl ether	ND	1.00	-	-	-	-	-	-	
Methylene chloride	ND	5.00	-	-	-	-	-	-	
Naphthalene	ND	2.00	-	-	-	-	-	-	
n-Propylbenzene	ND	1.00	-	-	-	-	-	-	
Styrene	ND	1.00	-	-	-	-	-	-	
1,1,1,2-Tetrachloroethane	ND	1.00	-	-	-	-	-	-	
1,1,2,2-Tetrachloroethane	ND	1.00	-	-	-	-	-	-	
Tetrachloroethene	ND	1.00	-	-	-	-	-	-	
Toluene	ND	1.00	-	-	-	-	-	-	
1,2,3-Trichlorobenzene	ND	1.00	-	-	-	-	-	-	
1,2,4-Trichlorobenzene	ND	1.00	-	-	-	-	-	-	
1,1,1-Trichloroethane	ND	1.00	-	-	-	-	-	-	
1,1,2-Trichloroethane	ND	1.00	-	-	-	-	-	-	
Trichloroethene	ND	1.00	-	-	-	-	-	-	
Trichlorofluoromethane	ND	1.00	-	-	-	-	-	-	
1,2,3-Trichloropropane	ND	1.00	-	-	-	-	-	-	
1,2,4-Trimethylbenzene	ND	1.00	-	-	-	-	-	-	
1,3,5-Trimethylbenzene	ND	1.00	-	-	-	-	-	-	
Vinyl chloride	ND	1.00	-	-	-	-	-	-	
o-Xylene	ND	1.00	-	-	-	-	-	-	
m,p-Xylene	ND	2.00	-	-	-	-	-	-	
Surr: 4-BFB	96.0 %	84-118							
Surr: 1,2-DCA-d4	114 %	79-123							
Surr: Dibromofluoromethane	96.0 %	81-121							
Surr: Toluene-d8	94.0 %	87-111							

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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Environmental Laboratory Network

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POPT1S601076



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 425.420.9200 fax 425.420.9210
 Spokane East 1115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-105 (P2A0518-05REI) Water									
Acetone	ND	25.0	ug/l	1	EPA 8260B	01/23/02	01/23/02	2010671	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	2.09	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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North Creek Analytical, Inc.
Environmental Laboratory Network

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Spokane East 11115 Montgomery, Suite B, Spokane, WA 99205-4776
 509.924.9200 fax 509.924.9299
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
S106020118-105 (P2A0518-05RE1) Water									
						Sampled: 01/18/02		Received: 01/21/02	
Hexachlorobutadiene	ND	2.00	ug/l	1	EPA 8260B	01/23/02	01/23/02	2010671	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	2.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	2.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
<i>Surr: 4-BFB</i>	106 %	84-118							
<i>Surr: 1,2-DCA-d4</i>	96.0 %	79-123							
<i>Surr: Dibromoiodomethane</i>	100 %	81-121							
<i>Surr: Toluene-d8</i>	98.5 %	87-111							

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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Environmental Laboratory Network

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POPT1S601078



Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-106 (P2A0518-06) Water									
						Sampled: 01/18/02	Received: 01/21/02		
Acetone	ND	25.0	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

North Creek Analytical, Inc.
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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99205-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.905.9200 fax 503.905.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-106 (P2A0518-06) Water									
Hexachlorobutadiene	ND	2.00	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	2.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	2.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
Surr: 4-BFB	94.5 %	84-118							
Surr: 1,2-DCA-d4	112 %	79-123							
Surr: Dibromo fluromethane	98.5 %	81-121							
Surr: Toluene-d8	94.5 %	87-111							

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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Environmental Laboratory Network

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POPT1S601080



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Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9299
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Reported:
02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-107 (P2A0518-07) Water									
					Sampled: 01/18/02		Received: 01/21/02		
Acetone	ND	25.0	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	1.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethylene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

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Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Reported:
02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analytic	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
S106020118-107 (P2A0518-07) Water									
Hexachlorobutadiene	ND	2.00	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	2.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	2.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
<i>Surr: 4-BFB</i>	92.5 %	84-118							
<i>Surr: 1,2-DCA-d4</i>	112 %	79-123							
<i>Surr: Dibromofluoromethane</i>	95.5 %	81-121							
<i>Surr: Toluene-d8</i>	96.5 %	87-111							

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analytic	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-109 (P2A0518-09) Water									
						Sampled: 01/18/02	Received: 01/21/02		
Acetone	ND	25.0	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethylene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethylene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethylene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

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 Spokane East 11115 Montgomery, Suite 3, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.506.9200 fax 503.506.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-109 (P2A0518-09) Water									
Hexachlorobutadiene	ND	2.00	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	2.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	2.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethylene	3.06	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethylene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
Surr: 4-BFB	92.5 %	84-118							
Surr: 1,2-DCA-d4	112 %	79-123							
Surr: Dibromofluoromethane	96.0 %	81-121							
Surr: Toluene-d8	96.0 %	87-111							

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
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Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-110 (P2A0518-10) Water									
						Sampled: 01/18/02	Received: 01/21/02		
Acetone	ND	25.0	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.905.9200 fax 503.905.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
S106020118-110 (P2A0518-10) Water									
Hexachlorobutadiene	ND	2.00	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	2.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	2.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	2.62	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
<i>Surr: 4-BFB</i>	96.0 %	84-118							
<i>Surr: 1,2-DCA-d4</i>	113 %	79-123							
<i>Surr: Dibromofluoromethane</i>	98.0 %	81-121							
<i>Surr: Toluene-d8</i>	97.5 %	87-111							

North Creek Analytical - Portland

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.905.9200 fax 503.905.9210
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Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
510620118-111 (P2A0518-11) Water									
Acetone	ND	25.0	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99208-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Hahn and Associates, Inc.
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Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-111 (P2A0518-11) Water									
Hexachlorobutadiene	ND	2.00	ug/l	1	EPA 8260B	01/22/02	01/22/02	2010623	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	2.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	2.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
<i>Surr: 4-BFB</i>	94.0 %	84-118							
<i>Surr: 1,2-DCA-d4</i>	113 %	79-123							
<i>Surr: Dibromofluoromethane</i>	98.0 %	81-121							
<i>Surr: Toluene-d8</i>	97.0 %	87-111							

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Environmental Laboratory Network

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POPT1S601088



Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
 425.420.9200 fax 425.420.9210
 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9230
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.905.9200 fax 503.905.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
S106020117-102 (P2A0518-02) Water									
Acenaphthene	ND	0.100	ug/l	1	EPA 8270m	01/24/02	01/31/02	2010722	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.200	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
<i>Surr: Fluorene-d10</i>	68.6 %	25-125							
<i>Surr: Pyrene-d10</i>	72.5 %	23-150							
<i>Surr: Benzo (a) pyrene-d12</i>	75.4 %	10-125							

S106020117-103 (P2A0518-03) Water									
Acenaphthene	ND	0.100	ug/l	1	EPA 8270m	01/24/02	01/31/02	2010722	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.200	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	0.102	0.100	"	"	"	"	"	"	
Pyrene	0.113	0.100	"	"	"	"	"	"	
<i>Surr: Fluorene-d10</i>	67.8 %	25-125							

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: TI South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020117-103 (P2A0518-03) Water Sampled: 01/17/02 Received: 01/21/02									
Surr: Pyrene-d10	68.6 %	23-150							
Surr: Benzo (a) pyrene-d12	75.0 %	10-125							
5106020117-104 (P2A0518-04) Water Sampled: 01/17/02 Received: 01/21/02									
Acenaphthene	0.115	0.100	ug/l	1	EPA 8270m	01/24/02	01/31/02	2010722	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND	0.200	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	0.608	0.100	"	"	"	"	"	"	
Pyrene	0.205	0.100	"	"	"	"	"	"	
Surr: Fluorene-d10	72.0 %	25-125							
Surr: Pyrene-d10	74.6 %	23-150							
Surr: Benzo (a) pyrene-d12	81.8 %	10-125							
5106020118-105 (P2A0518-05) Water Sampled: 01/18/02 Received: 01/21/02									
Acenaphthene	0.277	0.100	ug/l	1	EPA 8270m	01/24/02	01/31/02	2010722	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND	0.200	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: TI South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-105 (P2A0518-05) Water									
Naphthalene	ND	0.100	ug/l	1	EPA 8270m	01/24/02	01/31/02	2010722	
Phenanthrene	0.320	0.100	"	-	"	-	-	"	
Pyrene	ND	0.100	"	-	"	-	-	"	
Surr: Fluorene-d10	66.5 %	25-125							
Surr: Pyrene-d10	67.8 %	23-150							
Surr: Benzo (a) pyrene-d12	67.8 %	10-125							
5106020118-106 (P2A0518-06) Water									
Acenaphthene	0.125	0.100	ug/l	1	EPA 8270m	01/24/02	01/31/02	2010722	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.200	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	0.175	0.100	"	"	"	"	"	"	
Pyrene	0.119	0.100	"	"	"	"	"	"	
Surr: Fluorene-d10	72.9 %	25-125							
Surr: Pyrene-d10	72.5 %	23-150							
Surr: Benzo (a) pyrene-d12	72.5 %	10-125							

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Lisa Domenighini, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

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Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9293
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Reported:
02/04/02 14:42

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-107 (P2A0518-07) Water									
Acenaphthene	0.104	0.100	ug/l	1	EPA 8270m	01/24/02	01/31/02	2010722	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND	0.200	"	"	"	"	"	"	
Fluoranthene	0.107	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	0.555	0.100	"	"	"	"	"	"	
Pyrene	0.230	0.100	"	"	"	"	"	"	
<i>Surr: Fluorene-d10</i>	66.5 %	25-125							
<i>Surr: Pyrene-d10</i>	69.5 %	23-150							
<i>Surr: Benzo (a) pyrene-d12</i>	66.1 %	10-125							
5106020118-108 (P2A0518-08) Water									
Acenaphthene	0.110	0.100	ug/l	1	EPA 8270m	01/24/02	01/31/02	2010722	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND	0.200	"	"	"	"	"	"	
Fluoranthene	0.108	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	0.620	0.100	"	"	"	"	"	"	
Pyrene	0.251	0.100	"	"	"	"	"	"	
<i>Surr: Fluorene-d10</i>	67.4 %	25-125							

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4775
 509.924.9200 fax 509.924.9293
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
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5106020118-108 (P2A0518-08) Water Sampled: 01/18/02 Received: 01/21/02

Surr: Pyrene-d10 69.1 % 23-150
 Surr: Benzo (a) pyrene-d12 67.4 % 10-125

5106020118-109 (P2A0518-09) Water Sampled: 01/18/02 Received: 01/21/02

Acenaphthene	ND	0.100	ug/l	I	EPA 8270m	01/24/02	01/31/02	2010722
Acenaphthylene	ND	0.100	"	"	"	"	"	"
Anthracene	ND	0.100	"	"	"	"	"	"
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"
Chrysene	ND	0.100	"	"	"	"	"	"
Dibenzo (a,h) anthracene	ND	0.200	"	"	"	"	"	"
Fluoranthene	ND	0.100	"	"	"	"	"	"
Fluorene	ND	0.100	"	"	"	"	"	"
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"
Naphthalene	ND	0.100	"	"	"	"	"	"
Phenanthrene	ND	0.100	"	"	"	"	"	"
Pyrene	ND	0.100	"	"	"	"	"	"
Surr: Fluorene-d10	66.9 %	25-125						
Surr: Pyrene-d10	69.5 %	23-150						
Surr: Benzo (a) pyrene-d12	73.7 %	10-125						

5106020118-111 (P2A0518-11) Water Sampled: 01/18/02 Received: 01/21/02

Acenaphthene	ND	0.100	ug/l	I	EPA 8270m	01/24/02	01/31/02	2010722
Acenaphthylene	ND	0.100	"	"	"	"	"	"
Anthracene	ND	0.100	"	"	"	"	"	"
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"
Chrysene	ND	0.100	"	"	"	"	"	"
Dibenzo (a,h) anthracene	ND	0.200	"	"	"	"	"	"
Fluoranthene	ND	0.100	"	"	"	"	"	"
Fluorene	ND	0.100	"	"	"	"	"	"
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"

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Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
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Reported:
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Polynuclear Aromatic Compounds per EPA 8270M-SIM
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020118-111 (P2A0518-11) Water									
Naphthalene	ND	0.100	ug/l	1	EPA 8270m	01/24/02	01/31/02	2010722	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
<i>Surr: Fluorene-d10</i>	67.8 %	25-125							
<i>Surr: Pyrene-d10</i>	70.3 %	23-150							
<i>Surr: Benzo (a) pyrene-d12</i>	78.0 %	10-125							

North Creek Analytical - Portland

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Environmental Laboratory Network

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POPT1S601094



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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7583

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Conventional Chemistry Parameters per APHA/EPA Methods
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
5106020117-102 (P2A0518-02) Water									
Total Suspended Solids	30.0	10.0	mg/l	1	EPA 160.2	01/22/02	01/23/02	2010636	Sampled: 01/17/02 Received: 01/21/02
5106020117-103 (P2A0518-03) Water									
Total Suspended Solids	12.0	10.0	mg/l	1	EPA 160.2	01/22/02	01/23/02	2010636	Sampled: 01/17/02 Received: 01/21/02
5106020117-104 (P2A0518-04) Water									
Total Suspended Solids	40.0	10.0	mg/l	1	EPA 160.2	01/22/02	01/23/02	2010636	Sampled: 01/17/02 Received: 01/21/02
5106020118-105 (P2A0518-05) Water									
Total Suspended Solids	17.0	10.0	mg/l	1	EPA 160.2	01/22/02	01/23/02	2010636	Sampled: 01/18/02 Received: 01/21/02
5106020118-106 (P2A0518-06) Water									
Total Suspended Solids	15.0	10.0	mg/l	1	EPA 160.2	01/22/02	01/23/02	2010636	Sampled: 01/18/02 Received: 01/21/02
5106020118-107 (P2A0518-07) Water									
Total Suspended Solids	19.0	10.0	mg/l	1	EPA 160.2	01/22/02	01/23/02	2010636	Sampled: 01/18/02 Received: 01/21/02
5106020118-108 (P2A0518-08) Water									
Total Suspended Solids	29.0	10.0	mg/l	1	EPA 160.2	01/22/02	01/23/02	2010636	Sampled: 01/18/02 Received: 01/21/02
5106020118-109 (P2A0518-09) Water									
Total Suspended Solids	57.0	10.0	mg/l	1	EPA 160.2	01/22/02	01/23/02	2010636	Sampled: 01/18/02 Received: 01/21/02

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
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Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2010720 - EPA 3510 Fuels

Blank (2010720-BLK1)

Prepared & Analyzed: 01/24/02

Diesel Range Organics ND 0.250 mg/l

Heavy Oil Range Hydrocarbons ND 0.500 "

Surr: *I-Chlorooctadecane* 0.0808 " 0.0960 84.2 50-150

LCS (2010720-BS1)

Prepared & Analyzed: 01/24/02

Diesel Range Organics 2.49 0.250 mg/l 2.58 96.5 50-150

Heavy Oil Range Hydrocarbons 1.52 0.500 " 1.58 96.2 50-150

Surr: *I-Chlorooctadecane* 0.0991 " 0.0960 103 50-150

LCS Dup (2010720-BSD1)

Prepared & Analyzed: 01/24/02

Diesel Range Organics 2.46 0.250 mg/l 2.58 95.3 50-150 1.21 50

Heavy Oil Range Hydrocarbons 1.56 0.500 " 1.58 98.7 50-150 2.60 50

Surr: *I-Chlorooctadecane* 0.0873 " 0.0960 90.9 50-150

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Lisa Domenighini, Project Manager

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POPT1S601096



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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.905.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Total Metals per EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
Batch 2010644 - EPA 200/3005										
Blank (2010644-BLK1)										
Prepared: 01/22/02 Analyzed: 01/23/02										
Arsenic	ND	0.00100	mg/l							
Chromium	ND	0.00100	"							
Copper	ND	0.00200	"							
Lead	ND	0.00100	"							
LCS (2010644-BS1)										
Prepared: 01/22/02 Analyzed: 01/23/02										
Arsenic	0.107	0.00100	mg/l	0.100	107	80-120				
Chromium	0.101	0.00100	"	0.100	101	80-120				
Copper	0.107	0.00200	"	0.100	107	80-120				
Lead	0.105	0.00100	"	0.100	105	80-120				
Duplicate (2010644-DUP1)										
Source: P2A0518-02 Prepared: 01/22/02 Analyzed: 01/23/02										
Arsenic	0.00138	0.00100	mg/l	0.00116	17.3	20				
Chromium	0.00299	0.00100	"	0.00281	6.21	20				
Copper	0.00311	0.00200	"	0.00331	6.23	20				
Lead	0.00195	0.00100	"	0.00186	4.72	20				
Matrix Spike (2010644-MS1)										
Source: P2A0518-02 Prepared: 01/22/02 Analyzed: 01/23/02										
Arsenic	0.108	0.00100	mg/l	0.100	0.00116	107	75-125			
Chromium	0.106	0.00100	"	0.100	0.00281	103	75-125			
Copper	0.109	0.00200	"	0.100	0.00331	106	75-125			
Lead	0.102	0.00100	"	0.100	0.00186	100	75-125			
Matrix Spike (2010644-MS2)										
Source: P2A0518-03 Prepared: 01/22/02 Analyzed: 01/23/02										
Arsenic	0.112	0.00100	mg/l	0.100	0.00132	111	75-125			
Chromium	0.109	0.00100	"	0.100	0.00169	107	75-125			
Copper	0.107	0.00200	"	0.100	ND	105	75-125			
Lead	0.107	0.00100	"	0.100	0.00394	103	75-125			

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Lisa Domenighini, Project Manager

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010646 - EPA 200/3005 Diss										
Blank (2010646-BLK1)										
Prepared: 01/22/02 Analyzed: 01/23/02										
Arsenic	ND	0.00100	mg/l	-	-	-	-	-	-	-
Chromium	ND	0.00100	mg/l	-	-	-	-	-	-	-
Copper	ND	0.00200	mg/l	-	-	-	-	-	-	-
Lead	ND	0.00100	mg/l	-	-	-	-	-	-	-
LCS (2010646-BS1)										
Prepared: 01/22/02 Analyzed: 01/23/02										
Arsenic	0.108	0.00100	mg/l	0.100	-	108	80-120	-	-	-
Chromium	0.105	0.00100	mg/l	0.100	-	105	80-120	-	-	-
Copper	0.107	0.00200	mg/l	0.100	-	107	80-120	-	-	-
Lead	0.105	0.00100	mg/l	0.100	-	105	80-120	-	-	-
Duplicate (2010646-DUP1)										
Source: P2A0436-01 Prepared: 01/22/02 Analyzed: 01/23/02										
Arsenic	ND	0.00100	mg/l	-	ND	-	44.2	20	-	Q-06
Chromium	0.00114	0.00100	mg/l	-	0.00105	-	8.22	20	-	-
Copper	ND	0.00200	mg/l	-	ND	-	37.8	20	-	Q-06
Lead	ND	0.00100	mg/l	-	ND	-	5.13	20	-	-
Matrix Spike (2010646-MS1)										
Source: P2A0436-01 Prepared: 01/22/02 Analyzed: 01/23/02										
Arsenic	0.109	0.00100	mg/l	0.100	ND	108	75-125	-	-	-
Chromium	0.105	0.00100	mg/l	0.100	0.00105	104	75-125	-	-	-
Copper	0.106	0.00200	mg/l	0.100	ND	106	75-125	-	-	-
Lead	0.103	0.00100	mg/l	0.100	ND	103	75-125	-	-	-
Matrix Spike (2010646-MS3)										
Source: P2A0518-09 Prepared: 01/22/02 Analyzed: 01/23/02										
Arsenic	0.111	0.00100	mg/l	0.100	ND	110	75-125	-	-	-
Chromium	0.106	0.00100	mg/l	0.100	0.00143	105	75-125	-	-	-
Copper	0.106	0.00200	mg/l	0.100	ND	105	75-125	-	-	-
Lead	0.103	0.00100	mg/l	0.100	ND	103	75-125	-	-	-

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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POPT1S601098



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 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2010623 - EPA 5030B

Blank (2010623-BLK1)

Prepared & Analyzed: 01/22/02

Acetone	ND	25.0	ug/l	-	-	-	-	-	-	-
Benzene	ND	1.00	"	-	-	-	-	-	-	-
Bromobenzene	ND	1.00	"	-	-	-	-	-	-	-
Bromoform	ND	1.00	"	-	-	-	-	-	-	-
Bromomethane	ND	5.00	"	-	-	-	-	-	-	-
2-Butanone	ND	10.0	"	-	-	-	-	-	-	-
n-Butylbenzene	ND	5.00	"	-	-	-	-	-	-	-
sec-Butylbenzene	ND	1.00	"	-	-	-	-	-	-	-
tert-Butylbenzene	ND	1.00	"	-	-	-	-	-	-	-
Carbon disulfide	ND	10.0	"	-	-	-	-	-	-	-
Carbon tetrachloride	ND	1.00	"	-	-	-	-	-	-	-
Chlorobenzene	ND	1.00	"	-	-	-	-	-	-	-
Chloroethane	ND	1.00	"	-	-	-	-	-	-	-
Chloroform	ND	1.00	"	-	-	-	-	-	-	-
Chloromethane	ND	5.00	"	-	-	-	-	-	-	-
2-Chlorotoluene	ND	1.00	"	-	-	-	-	-	-	-
4-Chlorotoluene	ND	1.00	"	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	5.00	"	-	-	-	-	-	-	-
Dibromochloromethane	ND	1.00	"	-	-	-	-	-	-	-
1,2-Dibromoethane	ND	1.00	"	-	-	-	-	-	-	-
Dibromomethane	ND	1.00	"	-	-	-	-	-	-	-
1,2-Dichlorobenzene	ND	1.00	"	-	-	-	-	-	-	-
1,3-Dichlorobenzene	ND	1.00	"	-	-	-	-	-	-	-
1,4-Dichlorobenzene	ND	1.00	"	-	-	-	-	-	-	-
Dichlorodifluoromethane	ND	5.00	"	-	-	-	-	-	-	-
1,1-Dichloroethane	ND	1.00	"	-	-	-	-	-	-	-
1,2-Dichloroethane	ND	1.00	"	-	-	-	-	-	-	-
1,1-Dichloroethene	ND	1.00	"	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	ND	1.00	"	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	ND	1.00	"	-	-	-	-	-	-	-
1,2-Dichloropropane	ND	1.00	"	-	-	-	-	-	-	-
1,3-Dichloropropane	ND	1.00	"	-	-	-	-	-	-	-
2,2-Dichloropropane	ND	1.00	"	-	-	-	-	-	-	-
1,1-Dichloropropene	ND	1.00	"	-	-	-	-	-	-	-

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Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210
 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9250
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010623 - EPA 5030B										
Blank (2010623-BLK1)										
cis-1,3-Dichloropropene	ND	1.00	ug/l							
trans-1,3-Dichloropropene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
Hexachlorobutadiene	ND	2.00	"							
2-Hexanone	ND	10.0	"							
Isopropylbenzene	ND	2.00	"							
p-Isopropyltoluene	ND	2.00	"							
4-Methyl-2-pentanone	ND	5.00	"							
Methyl tert-butyl ether	ND	1.00	"							
Methylene chloride	ND	5.00	"							
Naphthalene	ND	2.00	"							
n-Propylbenzene	ND	1.00	"							
Styrene	ND	1.00	"							
1,1,1,2-Tetrachloroethane	ND	1.00	"							
1,1,2,2-Tetrachloroethane	ND	1.00	"							
Tetrachloroethene	ND	1.00	"							
Toluene	ND	1.00	"							
1,2,3-Trichlorobenzene	ND	1.00	"							
1,2,4-Trichlorobenzene	ND	1.00	"							
1,1,1-Trichloroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	1.00	"							
Trichloroethene	ND	1.00	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	1.00	"							
1,2,4-Trimethylbenzene	ND	1.00	"							
1,3,5-Trimethylbenzene	ND	1.00	"							
Vinyl chloride	ND	1.00	"							
o-Xylene	ND	1.00	"							
m,p-Xylene	ND	2.00	"							
<i>Surr: 4-BFB</i>	18.9		"	20.0		94.5	84-118			
<i>Surr: 1,2-DCA-d4</i>	22.3		"	20.0		112	79-123			
<i>Surr: DibromoFluoromethane</i>	19.4		"	20.0		97.0	81-121			
<i>Surr: Toluene-d8</i>	19.4		"	20.0		97.0	87-111			

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Reported:
02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2010623 - EPA 5030B

LCS (2010623-BS1)

	Prepared & Analyzed: 01/22/02					
Benzene	20.0	1.00	ug/l	20.0	100	80-125
Chlorobenzene	20.2	1.00	"	20.0	101	80-125
1,1-Dichloroethene	17.7	1.00	"	20.0	88.5	70-135
Toluene	19.7	1.00	"	20.0	98.5	80-125
Trichloroethene	20.6	1.00	"	20.0	103	70-130
<i>Surr: 4-BFB</i>	19.8		"	20.0	99.0	84-118
<i>Surr: 1,2-DCA-d4</i>	21.6		"	20.0	108	79-123
<i>Surr: Dibromoformmethane</i>	19.3		"	20.0	96.5	81-121
<i>Surr: Toluene-d8</i>	19.6		"	20.0	98.0	87-111

Matrix Spike (2010623-MS1)

	Source: P2A0518-03 Prepared & Analyzed: 01/22/02						
Benzene	21.2	1.00	ug/l	20.0	ND	106	80-125
Chlorobenzene	20.4	1.00	"	20.0	ND	102	80-125
1,1-Dichloroethene	19.0	1.00	"	20.0	ND	95.0	70-135
Toluene	18.7	1.00	"	20.0	ND	92.9	80-125
Trichloroethene	21.1	1.00	"	20.0	ND	106	70-130
<i>Surr: 4-BFB</i>	20.1		"	20.0	100	84-118	
<i>Surr: 1,2-DCA-d4</i>	21.6		"	20.0	108	79-123	
<i>Surr: Dibromoformmethane</i>	19.5		"	20.0	97.5	81-121	
<i>Surr: Toluene-d8</i>	19.1		"	20.0	95.5	87-111	

Matrix Spike Dup (2010623-MSDI)

	Source: P2A0518-03 Prepared & Analyzed: 01/22/02						
Benzene	20.9	1.00	ug/l	20.0	ND	104	80-125
Chlorobenzene	20.1	1.00	"	20.0	ND	100	80-125
1,1-Dichloroethene	18.9	1.00	"	20.0	ND	94.5	70-135
Toluene	18.1	1.00	"	20.0	ND	89.9	80-125
Trichloroethene	20.8	1.00	"	20.0	ND	104	70-130
<i>Surr: 4-BFB</i>	19.4		"	20.0	97.0	84-118	
<i>Surr: 1,2-DCA-d4</i>	21.5		"	20.0	108	79-123	
<i>Surr: Dibromoformmethane</i>	19.2		"	20.0	96.0	81-121	
<i>Surr: Toluene-d8</i>	18.8		"	20.0	94.0	87-111	

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B, Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2010671 - EPA 5030B

Blank (2010671-BLK1)

Prepared & Analyzed: 01/23/02

Acetone	ND	25.0	ug/l							
Benzene	ND	1.00	"							
Bromobenzene	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	5.00	"							
2-Butanone	ND	10.0	"							
n-Butylbenzene	ND	5.00	"							
sec-Butylbenzene	ND	1.00	"							
tert-Butylbenzene	ND	1.00	"							
Carbon disulfide	ND	10.0	"							
Carbon tetrachloride	ND	1.00	"							
Chlorobenzene	ND	1.00	"							
Chloroethane	ND	1.00	"							
Chloroform	ND	1.00	"							
Chloromethane	ND	5.00	"							
2-Chlorotoluene	ND	1.00	"							
4-Chlorotoluene	ND	1.00	"							
1,2-Dibromo-3-chloropropane	ND	5.00	"							
Dibromochloromethane	ND	1.00	"							
1,2-Dibromoethane	ND	1.00	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	1.00	"							
1,3-Dichlorobenzene	ND	1.00	"							
1,4-Dichlorobenzene	ND	1.00	"							
Dichlorodifluoromethane	ND	5.00	"							
1,1-Dichloroethane	ND	1.00	"							
1,2-Dichloroethane	ND	1.00	"							
1,1-Dichloroethene	ND	1.00	"							
cis-1,2-Dichloroethene	ND	1.00	"							
trans-1,2-Dichloroethene	ND	1.00	"							
1,2-Dichloropropane	ND	1.00	"							
1,3-Dichloropropane	ND	1.00	"							
2,2-Dichloropropane	ND	1.00	"							
1,1-Dichloropropene	ND	1.00	"							

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 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
 02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010671 - EPA 5030B										
Blank (2010671-BLK1)										
Prepared & Analyzed: 01/23/02										
cis-1,3-Dichloropropene	ND	1.00	ug/l							
trans-1,3-Dichloropropene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
Hexachlorobutadiene	ND	2.00	"							
2-Hexanone	ND	10.0	"							
Isopropylbenzene	ND	2.00	"							
p-Isopropyltoluene	ND	2.00	"							
4-Methyl-2-pentanone	ND	5.00	"							
Methyl tert-butyl ether	ND	1.00	"							
Methylene chloride	ND	5.00	"							
Naphthalene	ND	2.00	"							
n-Propylbenzene	ND	1.00	"							
Styrene	ND	1.00	"							
1,1,1,2-Tetrachloroethane	ND	1.00	"							
1,1,2,2-Tetrachloroethane	ND	1.00	"							
Tetrachloroethene	ND	1.00	"							
Toluene	ND	1.00	"							
1,2,3-Trichlorobenzene	ND	1.00	"							
1,2,4-Trichlorobenzene	ND	1.00	"							
1,1,1-Trichloroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	1.00	"							
Trichloroethene	ND	1.00	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	1.00	"							
1,2,4-Trimethylbenzene	ND	1.00	"							
1,3,5-Trimethylbenzene	ND	1.00	"							
Vinyl chloride	ND	1.00	"							
o-Xylene	ND	1.00	"							
m,p-Xylene	ND	2.00	"							
<i>Surr: 4-BFB</i>	20.0	"		20.0		100	84-118			
<i>Surr: 1,2-DCA-d4</i>	19.5	"		20.0		97.5	79-123			
<i>Surr: Dibromofluoromethane</i>	19.8	"		20.0		99.0	81-121			
<i>Surr: Toluene-d8</i>	19.6	"		20.0		98.0	87-111			

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 425.420.9200 fax 425.420.9210
 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9230
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010671 - EPA 5030B										
LCS (2010671-BS1)										
Prepared & Analyzed: 01/23/02										
Benzene	20.4	1.00	ug/l	20.0	102	80-125				
Chlorobenzene	22.6	1.00	"	20.0	113	80-125				
1,1-Dichloroethene	18.3	1.00	"	20.0	91.5	70-135				
Toluene	21.4	1.00	"	20.0	107	80-125				
Trichloroethene	20.2	1.00	"	20.0	101	70-130				
<i>Surr: 4-BFB</i>	<i>20.4</i>		"	<i>20.0</i>	<i>102</i>	<i>84-118</i>				
<i>Surr: 1,2-DCA-d4</i>	<i>18.5</i>		"	<i>20.0</i>	<i>92.5</i>	<i>79-123</i>				
<i>Surr: Dibromofluoromethane</i>	<i>19.5</i>		"	<i>20.0</i>	<i>97.5</i>	<i>81-121</i>				
<i>Surr: Toluene-d8</i>	<i>20.6</i>		"	<i>20.0</i>	<i>103</i>	<i>87-111</i>				
Matrix Spike (2010671-MS1)										
Source: P2A0539-01 Prepared & Analyzed: 01/23/02										
Benzene	20.1	1.00	ug/l	20.0	ND	100	80-125			
Chlorobenzene	19.7	1.00	"	20.0	ND	98.5	80-125			
1,1-Dichloroethene	21.0	1.00	"	20.0	ND	105	70-135			
Toluene	19.9	1.00	"	20.0	ND	99.5	80-125			
Trichloroethene	19.2	1.00	"	20.0	ND	96.0	70-130			
<i>Surr: 4-BFB</i>	<i>21.9</i>		"	<i>20.0</i>	<i>110</i>	<i>84-118</i>				
<i>Surr: 1,2-DCA-d4</i>	<i>19.2</i>		"	<i>20.0</i>	<i>96.0</i>	<i>79-123</i>				
<i>Surr: Dibromofluoromethane</i>	<i>19.7</i>		"	<i>20.0</i>	<i>98.5</i>	<i>81-121</i>				
<i>Surr: Toluene-d8</i>	<i>20.3</i>		"	<i>20.0</i>	<i>102</i>	<i>87-111</i>				
Matrix Spike Dup (2010671-MSD1)										
Source: P2A0539-01 Prepared & Analyzed: 01/23/02										
Benzene	21.2	1.00	ug/l	20.0	ND	106	80-125	5.33	25	
Chlorobenzene	20.0	1.00	"	20.0	ND	100	80-125	1.51	25	
1,1-Dichloroethene	21.1	1.00	"	20.0	ND	106	70-135	0.475	25	
Toluene	20.6	1.00	"	20.0	ND	103	80-125	3.46	25	
Trichloroethene	20.1	1.00	"	20.0	ND	100	70-130	4.58	25	
<i>Surr: 4-BFB</i>	<i>19.2</i>		"	<i>20.0</i>	<i>96.0</i>	<i>84-118</i>				
<i>Surr: 1,2-DCA-d4</i>	<i>18.8</i>		"	<i>20.0</i>	<i>94.0</i>	<i>79-123</i>				
<i>Surr: Dibromofluoromethane</i>	<i>20.0</i>		"	<i>20.0</i>	<i>100</i>	<i>81-121</i>				
<i>Surr: Toluene-d8</i>	<i>20.3</i>		"	<i>20.0</i>	<i>102</i>	<i>87-111</i>				

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 425.420.9200 fax 425.420.9210
 Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
 434 NW Sixth Ave., Suite 203
 Portland, OR 97209

Project: T1 South
 Project Number: 5106
 Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010722 - EPA 3520/600 Series										
Blank (2010722-BLK1)										
Acenaphthene	ND	0.100	ug/l	-						
Acenaphthylene	ND	0.100	-	-						
Anthracene	ND	0.100	-	-						
Benzo (a) anthracene	ND	0.100	-	-						
Benzo (a) pyrene	ND	0.100	-	-						
Benzo (b) fluoranthene	ND	0.100	-	-						
Benzo (ghi) perylene	ND	0.100	-	-						
Benzo (k) fluoranthene	ND	0.100	-	-						
Chrysene	ND	0.100	-	-						
Dibeno (a,h) anthracene	ND	0.200	-	-						
Fluoranthene	ND	0.100	-	-						
Fluorene	ND	0.100	-	-						
Indeno (1,2,3-cd) pyrene	ND	0.100	-	-						
Naphthalene	ND	0.100	-	-						
Phenanthrene	ND	0.100	-	-						
Pyrene	ND	0.100	-	-						
<i>Surr: Fluorene-d10</i>	1.74	"	2.50		69.6	25-125				
<i>Surr: Pyrene-d10</i>	1.80	"	2.50		72.0	23-150				
<i>Surr: Benzo (a) pyrene-d12</i>	1.76	"	2.50		70.4	10-125				
LCS (2010722-BS1)										
Acenaphthene	1.91	0.100	ug/l	2.50	76.4	26-135				
Benzo (a) pyrene	1.95	0.100	"	2.50	78.0	38-137				
Pyrene	1.94	0.100	"	2.50	77.6	33-133				
<i>Surr: Fluorene-d10</i>	1.70	"	2.50		68.0	25-125				
<i>Surr: Pyrene-d10</i>	1.84	"	2.50		73.6	23-150				
<i>Surr: Benzo (a) pyrene-d12</i>	1.85	"	2.50		74.0	10-125				

North Creek Analytical - Portland

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Spokane East 11115 Montgomery, Suite 3, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9250
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.905.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7568

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2010722 - EPA 3520/600 Series

LCS Dup (2010722-BSD1)	Prepared: 01/24/02 Analyzed: 01/31/02							
Acenaphthene	1.92	0.100	ug/l	2.50	76.8	26-135	0.522	60
Benzo (a) pyrene	2.01	0.100	"	2.50	80.4	38-137	3.03	60
Pyrene	1.94	0.100	"	2.50	77.6	33-133	0.00	60
Surr: Fluorene-d10	1.69		"	2.50	67.6	25-125		
Surr: Pyrene-d10	1.86		"	2.50	74.4	23-150		
Surr: Benzo (a) pyrene-d12	1.93		"	2.50	77.2	10-125		

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Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9220
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Conventional Chemistry Parameters per APHA/EPA Methods / Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010636 - Wet Chem										
Blank (2010636-BLK1)										
Total Suspended Solids ND 10.0 mg/l Prepared: 01/22/02 Analyzed: 01/23/02										
LCS (2010636-BS1)										
Total Suspended Solids 50.0 10.0 mg/l 50.3 99.4 80-120 Prepared: 01/22/02 Analyzed: 01/23/02										
Duplicate (2010636-DUP1)										
Total Suspended Solids Source: P2A0518-02 26.0 10.0 mg/l 30.0 14.3 20 Prepared: 01/22/02 Analyzed: 01/23/02										

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POPT1S601107



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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hahn and Associates, Inc.
434 NW Sixth Ave., Suite 203
Portland, OR 97209

Project: T1 South
Project Number: 5106
Project Manager: Guy Tanz

Reported:
02/04/02 14:42

Notes and Definitions

Q-06 Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis. MRLs are adjusted if %Solids are less than 50%.

wet Sample results reported on a wet weight basis (as received)

RPD Relative Percent Difference

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